

CONTEMPORARY DETAIL IN COMMON BRICK



COMMON BRICK MANUFACTURERS
ASSOCIATION OF AMERICA

CONTEMPORARY DETAIL IN COMMON BRICK

One of the interesting tendencies of contemporary architectural design is the growing use of brickwork for the expression of decorative detail. Brick has long been a favored medium for the development of varied textures and patterns, for its color and scale, and for its structural qualities; but there may now be noted a trend toward its use for ornamentation.

This growing appreciation of common* brick as a decorative material is spreading in two widely divergent directions. The modernists here and abroad have found in common brick a remarkably plastic medium for the expression of their new design forms. They have employed common brick in many refreshingly original and wholly appropriate ways. Those architects following more orthodox precedent, however, have turned to brick to recreate the atmosphere of past ages, for which purpose there is no more sympathetic material. Thus the modernists and the antiquarians, though much influenced by opposing ideas of design, have found common ground in their choice of the unit of brick as a material most amenable to their respective purposes.

The accompanying collection of plates is presented to the architects and designers of America as an inspirational exhibit of contemporary brickwork practice. Illustrations of outstanding European work have been included with those of domestic designs.

A study of these plates will serve as a review of present trends. Details of special interest have been drawn to approximate scale to add practical value to many of the illustrations.

Additional plates of the same character will be prepared and sent for inclusion in this folder.

COMMON BRICK MANUFACTURERS'
ASSOCIATION OF AMERICA
CLEVELAND, OHIO

* Definition of Common Brick — A solid building unit of burned clay or shale having a natural surface not treated to produce special effects in color or texture of the individual brick, but including "clinker" and overburned brick.

AVERTY LIBRARY
COLUMBIA UNIVERSITY

A. C. Ochs Brick & Tile Company,
204 South 9th Street,
Minneapolis, Minnesota

A CORBELLED BRICK TOWER

HARRY F. GUGGENHEIM
ESTATE, SANDS POINT,
LONG ISLAND, NEW YORK

FREDERICK STERNER
ARCHITECT

TEXTURE: COMMON BRICK Laid WITH
SLIGHTLY EXTRUDED MORTAR JOINTS

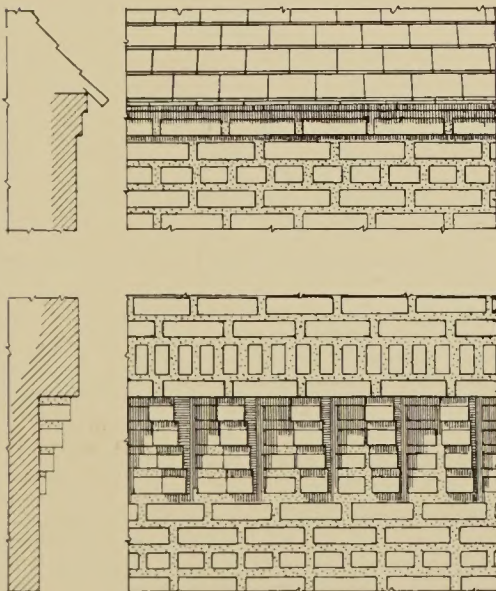
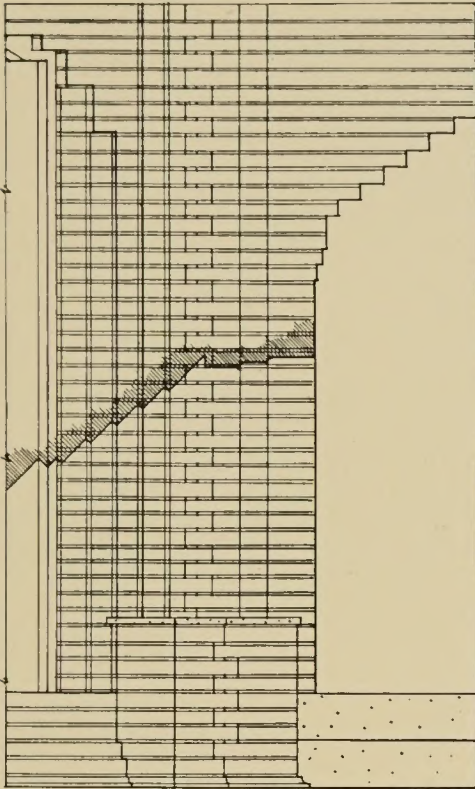
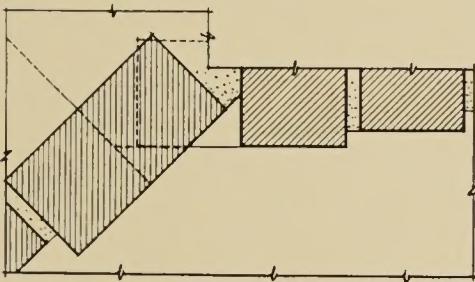


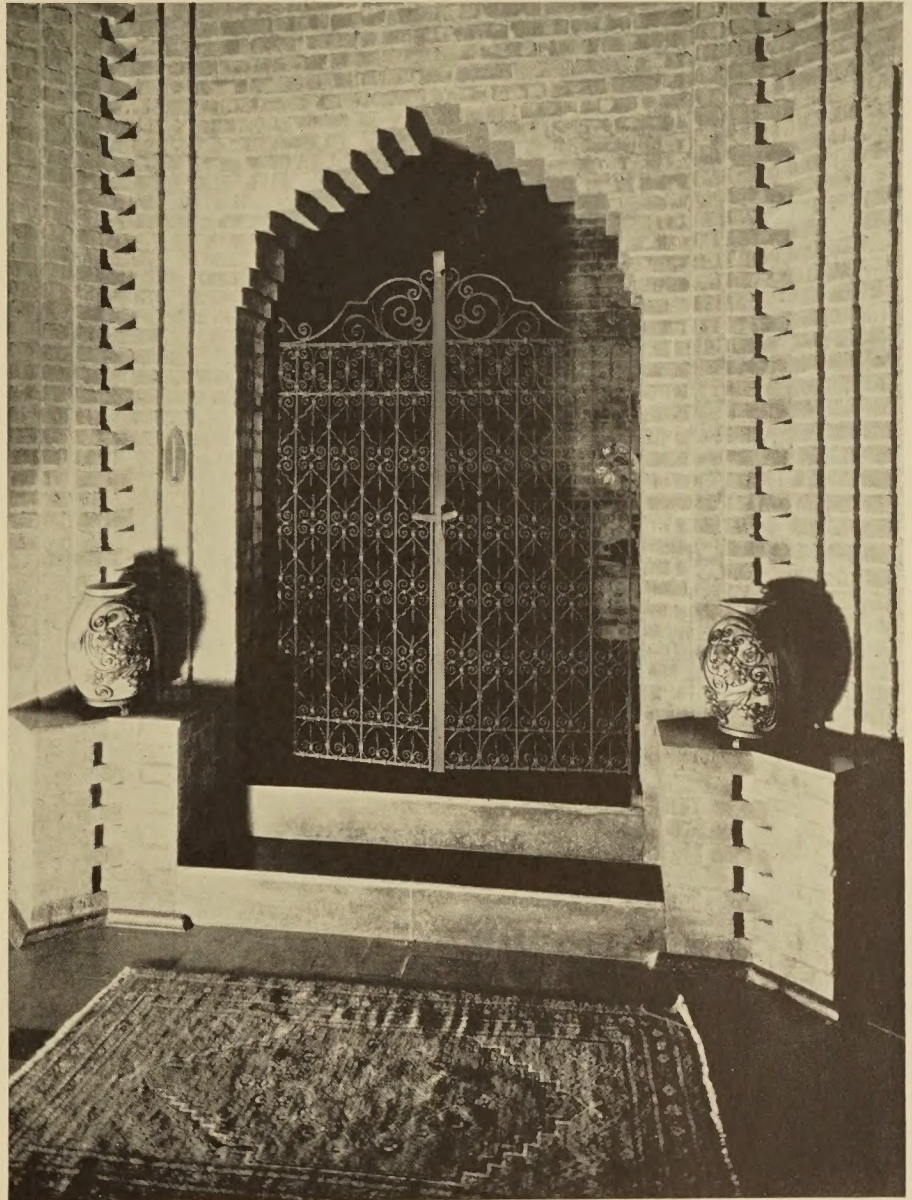
PHOTO: DRIX DURYEA



ELEVATION



PLAN

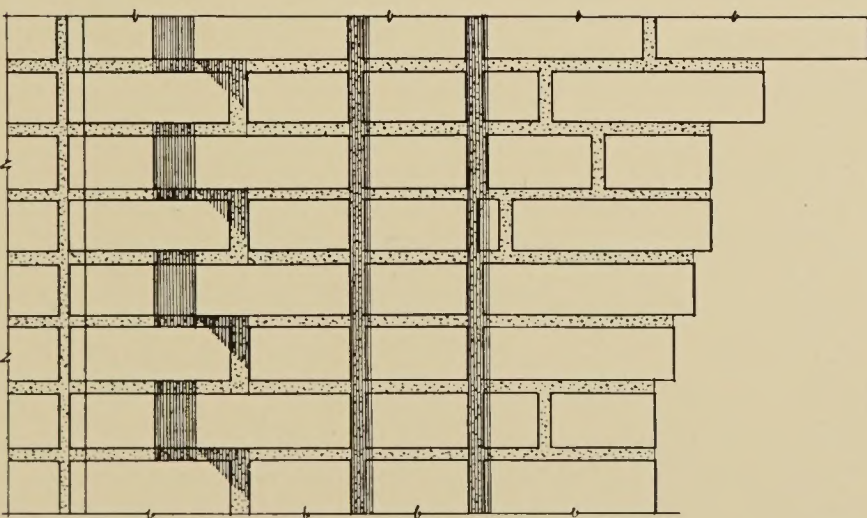


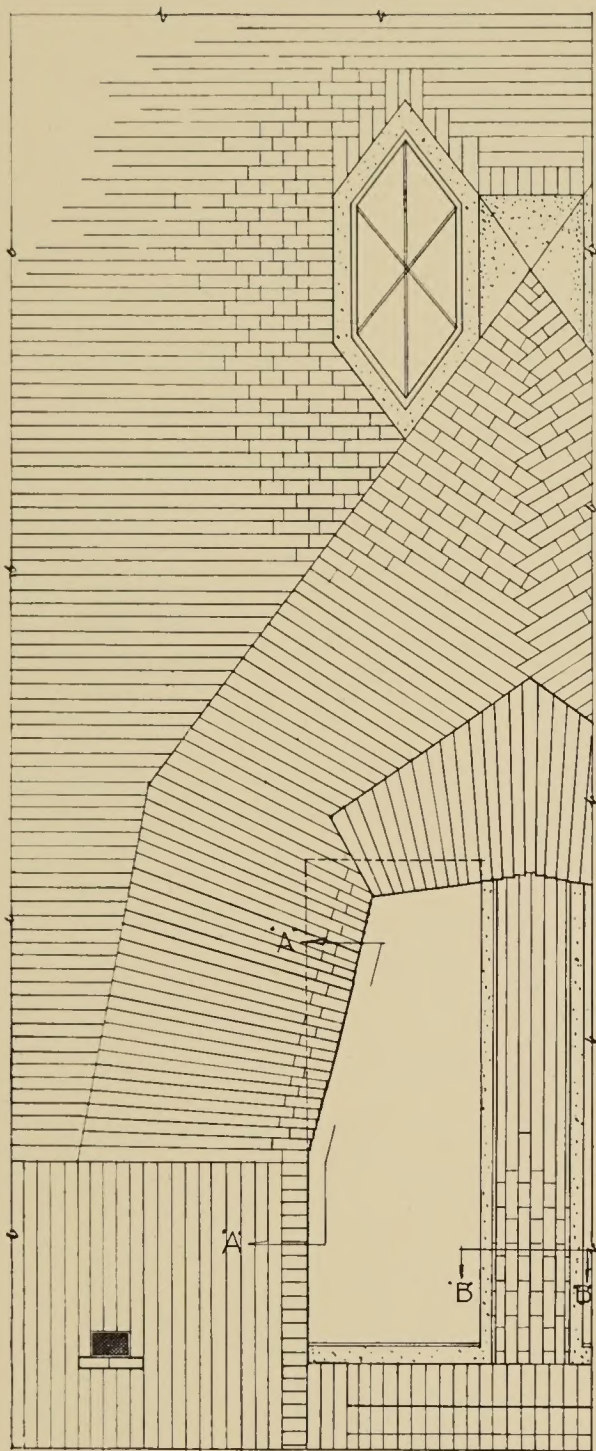
DOORWAY TO BRICK WALLED LIVING ROOM

RESIDENCE OF
CHAS. KRUTCKOFF
LONG BEACH, MICHIGAN CITY
INDIANA

JOHN LLOYD WRIGHT, ARCHITECT

NOTE PARTICULARLY TREATMENT
OF MORTAR JOINTS AT CORNERS





ELEVATION

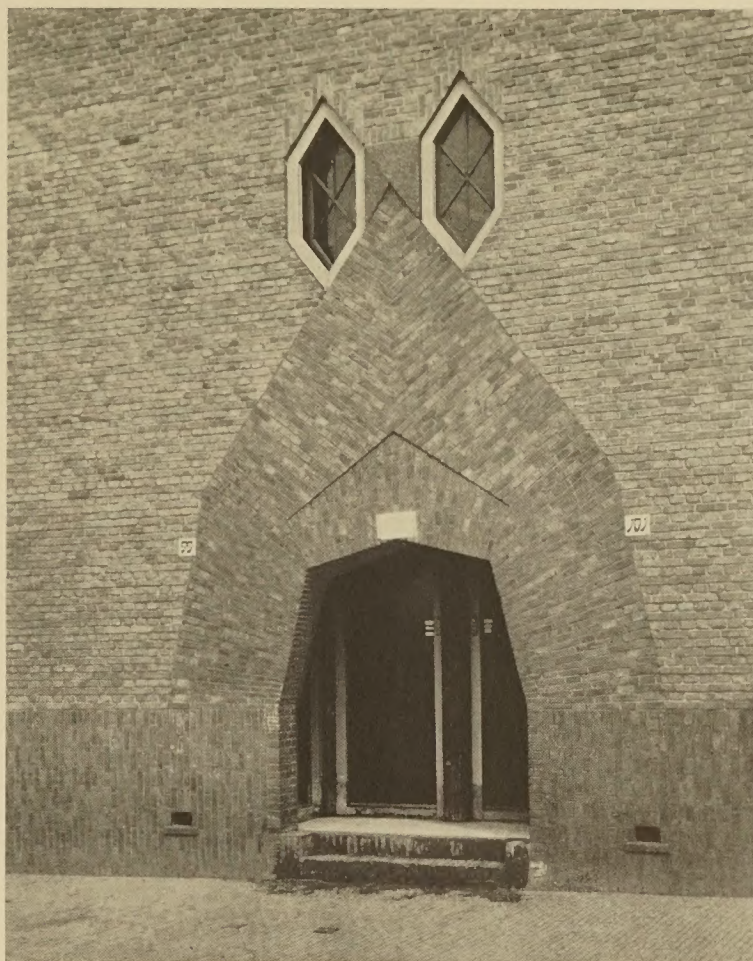
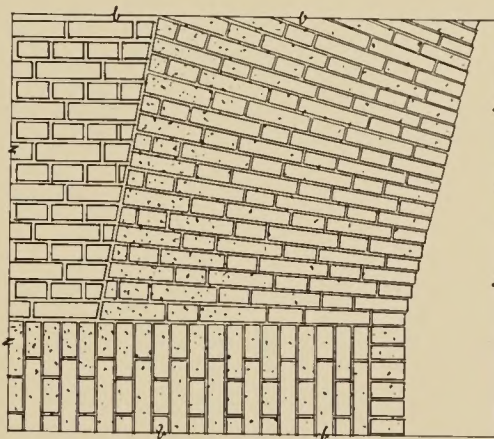
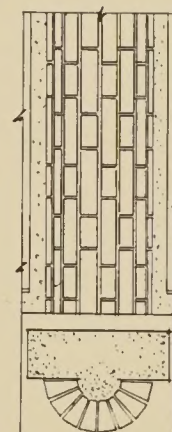


PHOTO BY BURTON HOLMES, FROM EWING GALLOWAY



DETAIL AT "A"



DETAIL
AT "B"

A MODERN BRICK DOORWAY IN AMSTERDAM

ENTRANCE TO AN APARTMENT HOUSE

GEOMETRIC FORMS OF VIGOROUS SIMPLICITY
TYPICAL OF CONTEMPORARY DUTCH DESIGN

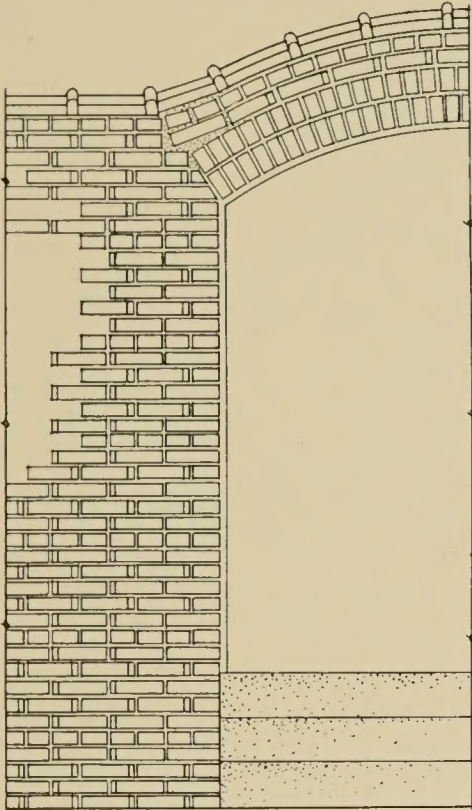
DEVELOPED IN TWO SHADES OF RED COMMON BRICK WITH ENDS AND BEDS FREQUENTLY GROUND TO FIT PATTERN

THE COMMON BRICK MANUFACTURERS' ASSOCIATION OF AMERICA, INC.

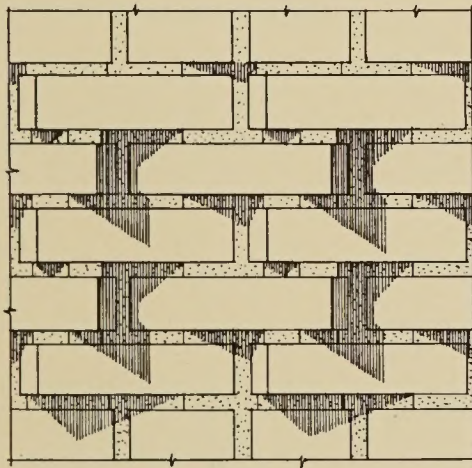


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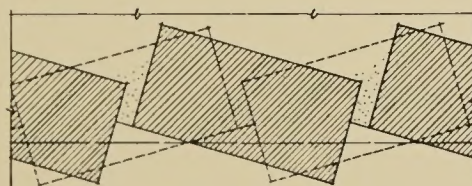
<https://archive.org/details/contemporarydeta00comm>



ELEVATION



TYPICAL WALL



PLAN



GATEWAY AND PATIO WALLS
RESIDENCE OF W. V. MERRIMAN
GLENCOE, ILLINOIS

W. AITKEN - - - ARCHITECT

TEXTURE OBTAINED WITH LOCAL COMMON BRICK IN ALTERNATING
SAWTOOTH COURSES, BONDED WITH COURSES OF FLUSH HEADERS

TEXTURES IN COMMON BRICK



WHITEWASHED—FLUSH MORTAR JOINTS



OCCASIONAL HARD-BURNED "CLINKERS"



SKINTLED BRICKWORK—COARSE TEXTURE



EXTRUDED MORTAR JOINTS



FLEMISH BOND—FLUSH MORTAR JOINTS



FLEMISH BOND—RAKED MORTAR JOINTS



STADT HALLE, MAGDEBURG, GERMANY
FRONT ELEVATION

STADTBAURAT JOHANNES GOEDERITZ - - - ARCHITECT

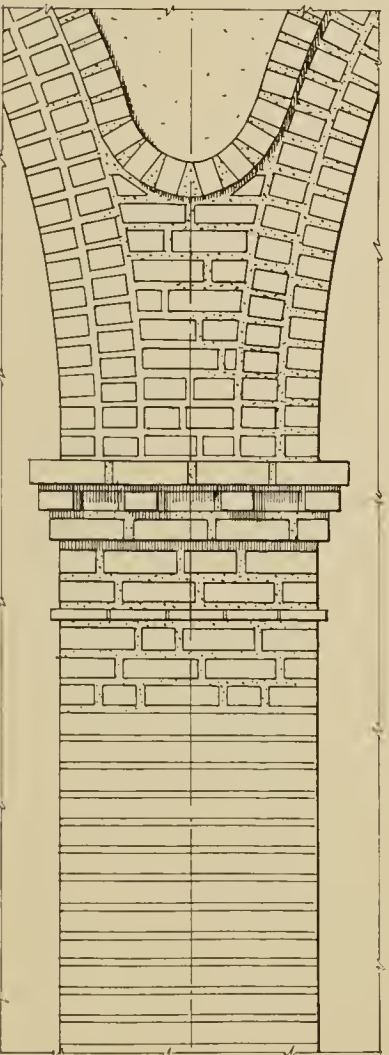
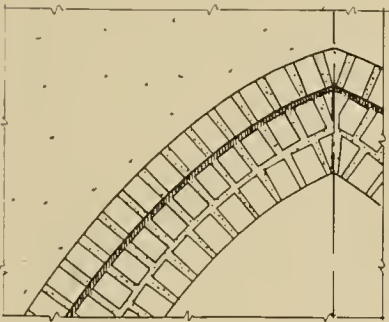
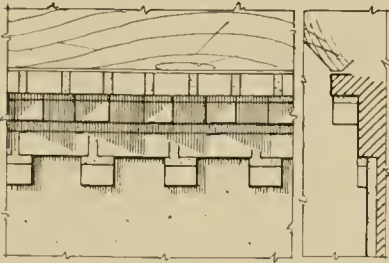


PHOTO: BROWNING STUDIOS

BRICK DETAIL-ST. LUKE'S CHURCH FOREST HILLS, NEW YORK

ROBERT TAPPAN - - ARCHITECT

COMMON BRICK USED FOR ARCHITECTURAL DETAIL AGAINST PLASTERED WALLS

OLD WORLD CHARM IN CONTEMPORARY BRICKWORK



S. EDSON GAGE

ARCHITECT



FRANK FORSTER

ARCHITECT



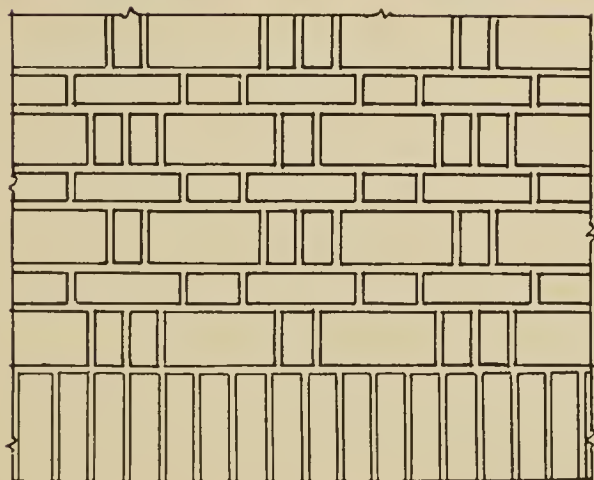
S. EDSON GAGE

ARCHITECT



DWIGHT JAMES BAUM

ARCHITECT



INTERIOR WALLS OF BRICK

IN THE RESIDENCE OF
GEORGE W. GANO
DENVER, COLORADO

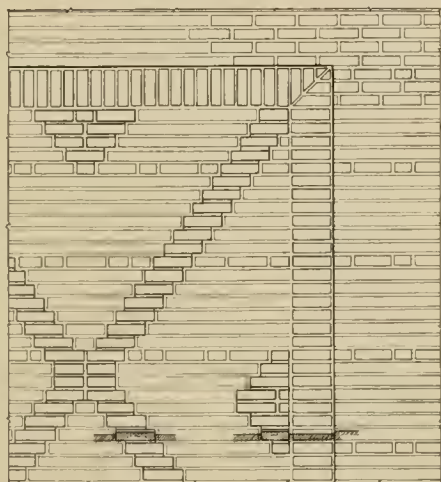
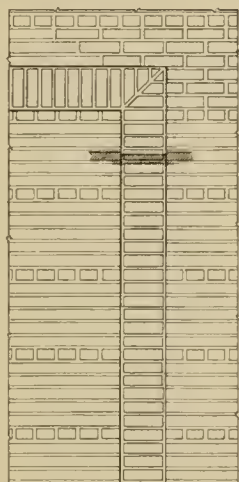
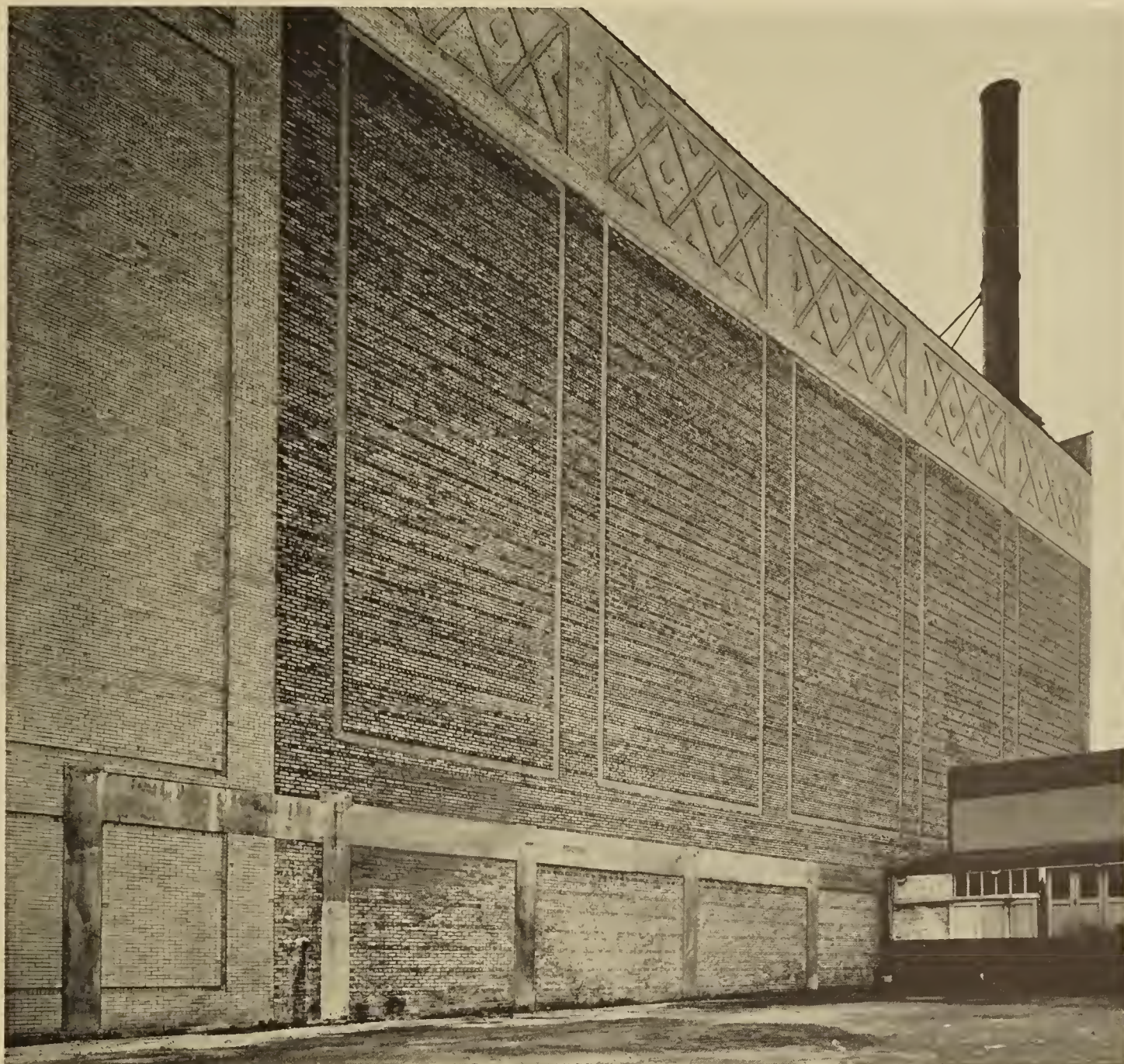
W. E. FISHER AND A. A. FISHER - - ARCHITECTS

COMMON BRICK IN ALTERNATING COURSES, FLAT AND ON EDGE



CREMATORY OF THE CITY OF HANNOVER, GERMANY
MAIN BUILDING WITH GREAT HALL

KONRAD WITTMAN - - - ARCHITECT



FACTORY WALL DESIGN

TEXTURE, PATTERN AND COLOR
DEVELOPED IN COMMON BRICK
TO RELIEVE LARGE WALL AREA

COMMON BOND WITH HEADER COURSES SLIGHTLY RECESSED

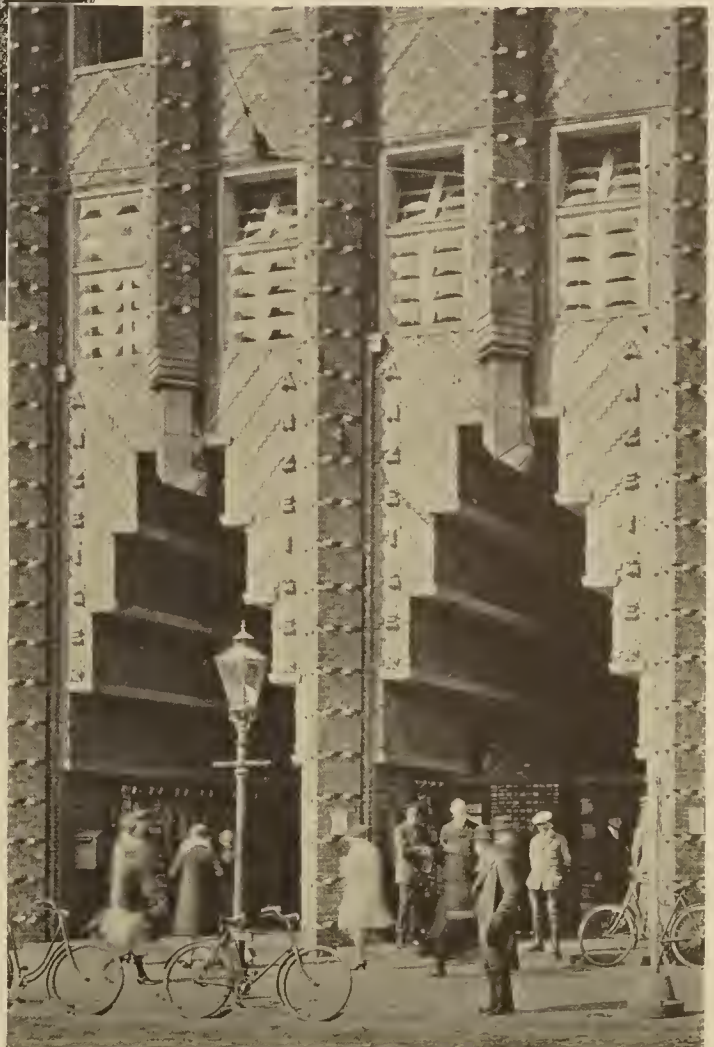


PHOTOS BY SIGURD FISCHER

HANNOVER ANZEIGER BUILDING

HANNOVER, GERMANY

FRITZ HÖGER - - - ARCHITECT

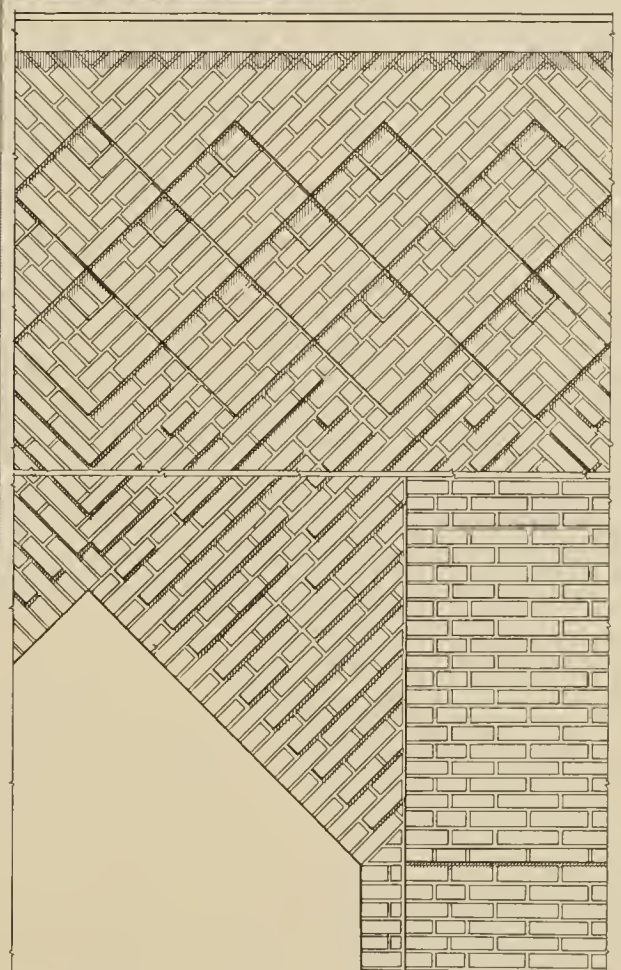


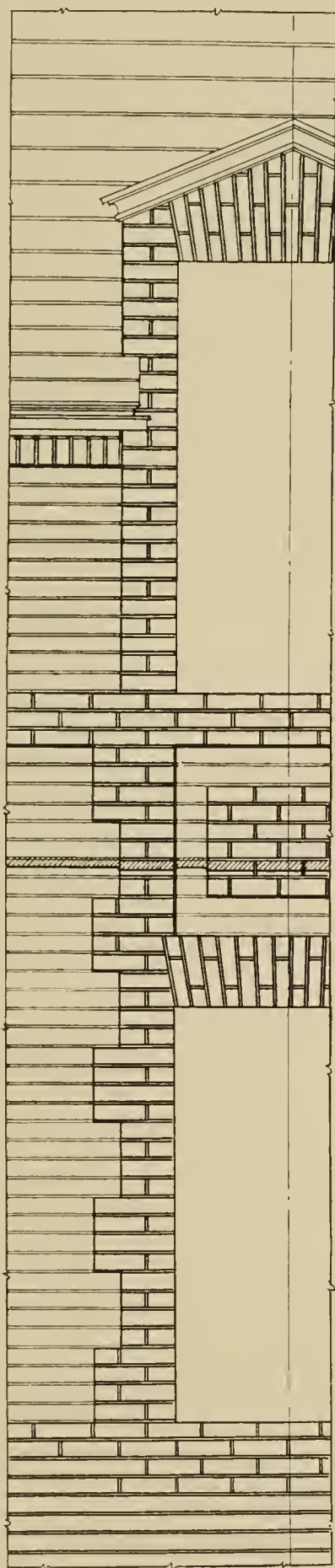


DÜSSELDORF PLANETARIUM
DÜSSELDORF, GERMANY
DETAIL OF RHEINHALLE

WILHELM KREIS - - - - ARCHITECT

AN OUTSTANDING EXAMPLE OF MODERN GERMAN DESIGN





HOUSE AT PRINCETON, N. J.

FRANCIS A. COMSTOCK, ARCHITECT

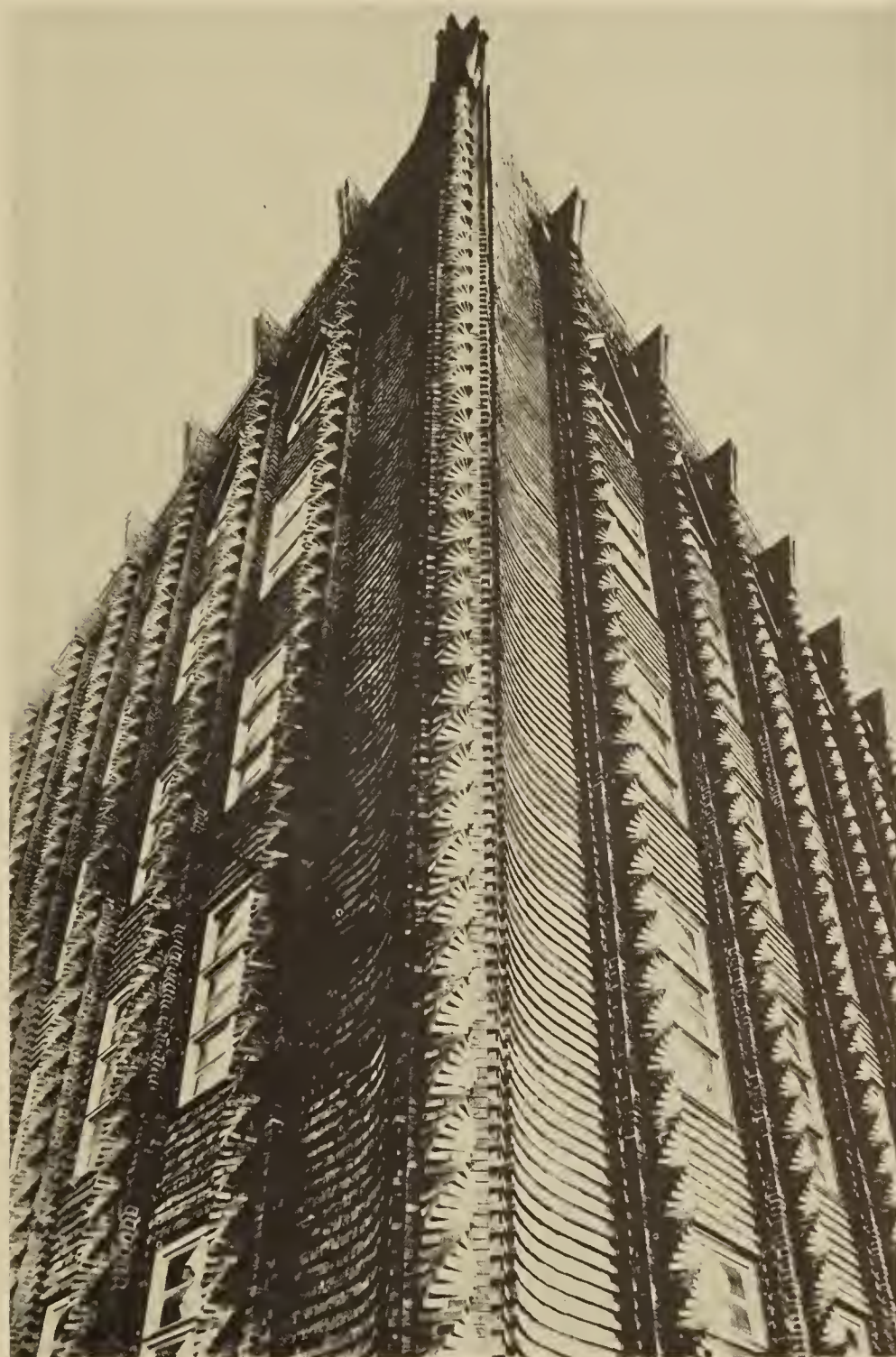
DETAIL OF SOUTH FRONT

CONTRASTING WHITE PAINTED BRICK WALLS WITH NATURAL COLOR DETAIL



MODERN FIRE STATION
ASHEVILLE, NO. CAROLINA

DOUGLAS D. ELLINGTON - - - ARCHITECT

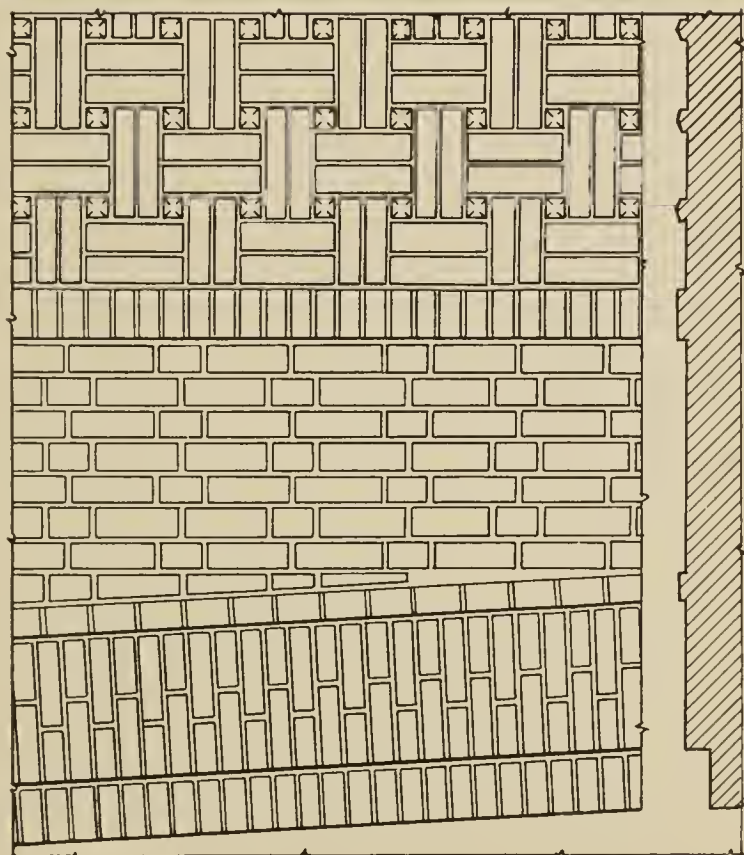


CIGARETTE FACTORY-HAMBURG

FRITZ HÖGER - - - - ARCHITECT

AN EXTRAORDINARY DEVELOPMENT OF COMMON BRICK DETAIL FOR ADVERTISING EFFECT

THE COMMON BRICK MANUFACTURERS' ASSOCIATION OF AMERICA, INC.



BRIDGE AT HAMBURG GERMANY

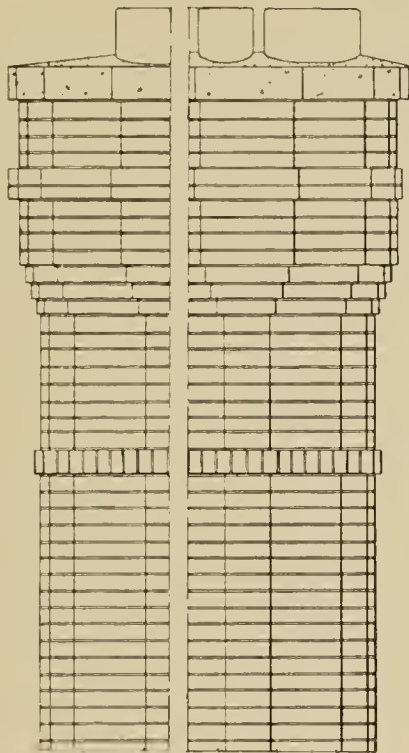
FRITZ SCHUMACHER, ARCHITECT

PARAPET WALL OF SPECIAL BRICK SHAPES



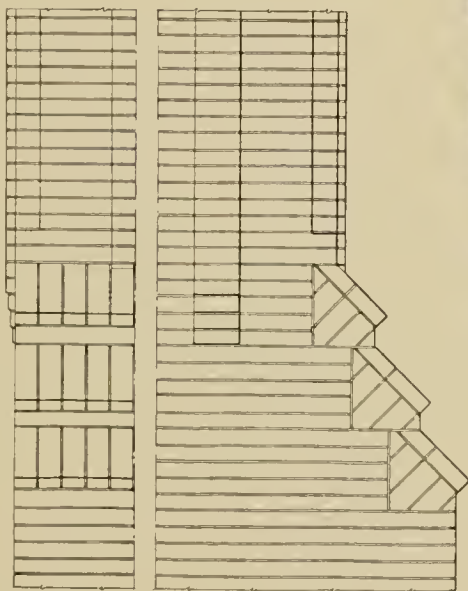
MODERNISM IN GERMAN DOMESTIC ARCHITECTURE A PRIVATE HOUSE IN HAMBURG

ESSELMANN AND GERNDTKE
ARCHITECTS



SIDE FRONT
ELEVATION

PLAN



SIDE FRONT
ELEVATION OF WASH



PHOTO: SAMUEL GOTTSCHO

CHIMNEY DETAIL IN COMMON BRICK RESIDENCE OF LANDON K. THORNE

BAYSHORE, LONG ISLAND

W. F. DOMINICK - - - ARCHITECT

NOTE MANNER OF LAYING BRICK TO FORM STEPPED WASHES



ENTRANCE TO APARTMENT HOUSE



ENTRANCE TO SINGLE HOUSE (IN ROW)



APARTMENT AND SHOPS



GARAGE DETAIL

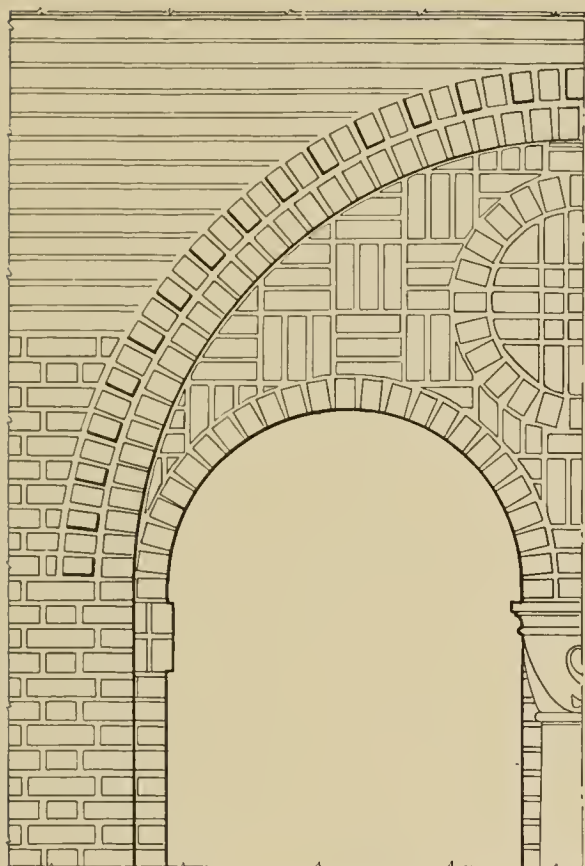
HOUSING DEVELOPMENT AT LONG ISLAND CITY, N.Y.

DETAILS OF BUILDINGS AT SUNNYSIDE

CLARENCE S. STEIN - - - ARCHITECT

ALL PHOTOS BY R. S. GRANT

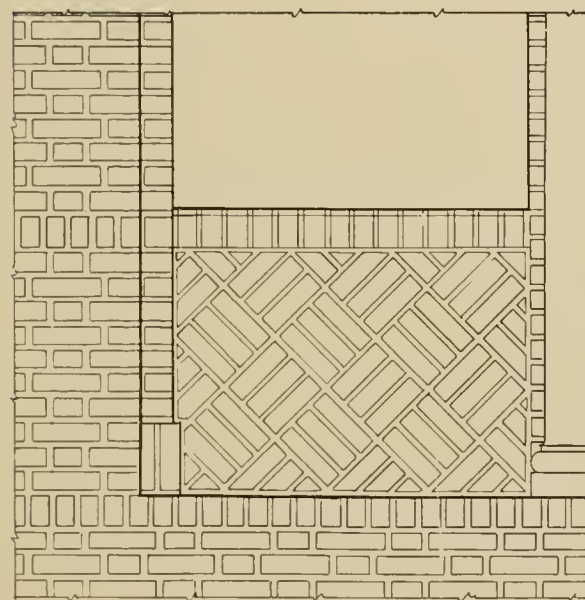
THE COMMON BRICK MANUFACTURERS' ASSOCIATION OF AMERICA, INC.



HALF ELEVATION



SECTION



HALF ELEVATION



DETAIL OF WINDOW GROUP
SACRAMENTO JUNIOR COLLEGE
SACRAMENTO, CALIFORNIA

DEAN AND DEAN - - - ARCHITECTS

WALL TEXTURE DEVELOPED IN FLEMISH BOND WITH RECESSED JOINTS

"....THE INFINITE VARIETY OF BRICKWORK"



JAMES ROY ALLEN

ARCHITECT



JAS. WHITCOMBE RITCHE

ARCHITECT



CHARLES E. WHITE & POMEROY

ARCHITECTS



JOHN D. ATCHISON

ARCHITECT

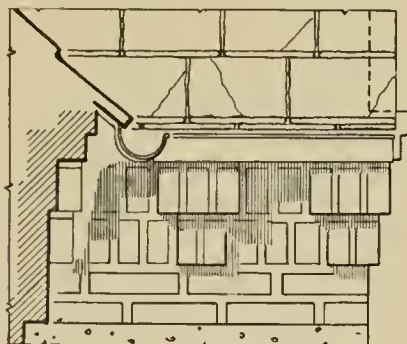
STADIUM AT AMSTERDAM

JAN WILS - - - ARCHITECT

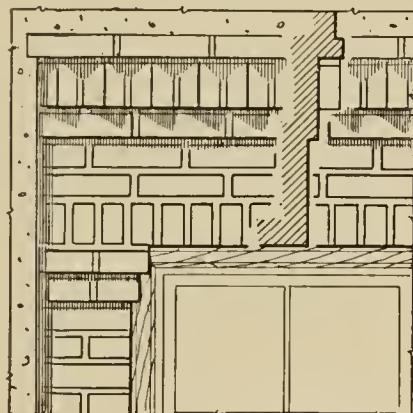


THE COLOR AND TEXTURE OF COMMON
BRICK MAINTAIN INTEREST IN A COM-
POSITION OF LARGE SIMPLE MASSES

PHOTOGRAPHS FROM "NIEUW NEDERLANDSCHE BOUWKUNST"
EDITED BY PROF. IR J. G. WATTJES, B. I. "KOSMOS" PUBL. CO.,
AMSTERDAM (HOLLAND)



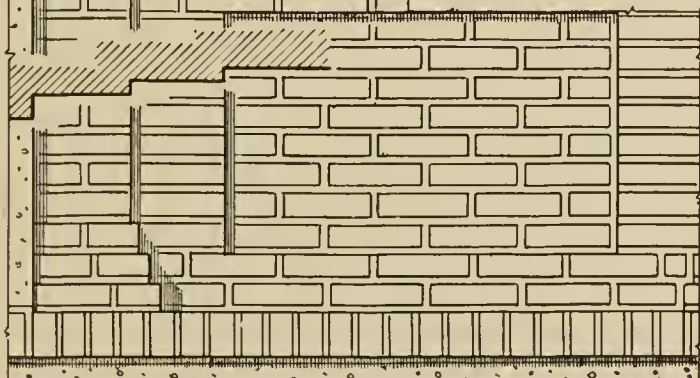
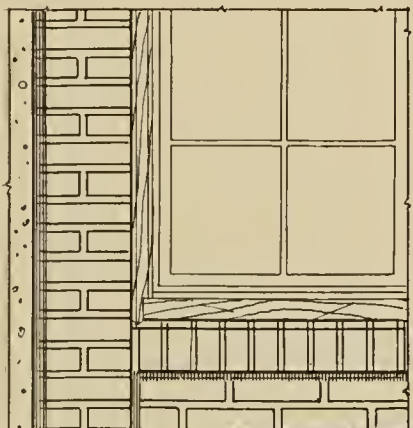
MAIN CORNICE



DETAIL OVER WINDOWS



SECTION



DETAIL BELOW WINDOWS



PHOTO BY GOTTSCHO

DETAILS OF BRICK IN WALLS OF STONE

RESIDENCE OF LOUIS WILPUTTE

NEW ROCHELLE, NEW YORK

JULIUS GREGORY - - - ARCHITECT

STONEWORK RELIEVED WITH COMMON BRICK DETAIL

FLUID MOTION EXPRESSED IN COMMON BRICK



PHOTO: BURTON HOLMES, FROM EWING GALLOWAY

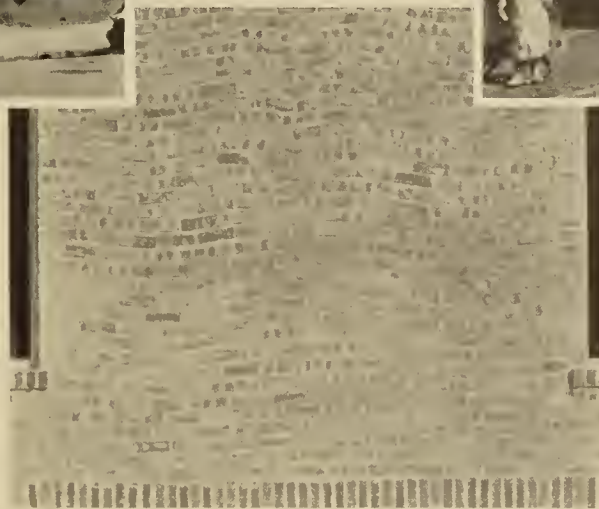
LEFT
APARTMENT
HOUSE IN
AMSTERDAM

RIGHT
DWELLING AND
POST OFFICE,
AMSTERDAM
DE KLERCK
ARCHITECT



PHOTO BY BONNEY

BELOW
WAVE MOTION
IN A BRICK WALL
CHICAGO



DWELLINGS IN ROW
AMSTERDAM - WEST

H. TH. WIJDEVELD ARCH.

DWELLING HOUSE
GRONINGEN

E. VAN LINGE ARCHITECT



TWO LOWER PHOTOGRAPHS FROM "NIEUW NEDERLANDSCHE BOUWKUNST" EDITED BY PROF. DR. J. G. WATTJES, B. I. "KOSMOS" PUBL. CO., AMSTERDAM (HOLLAND)

COMMON BRICK "NOGGING" WITH HALF TIMBER



HARRY M. RAMSAY

ARCHITECT



BIGELOW & WADSWORTH

ARCHITECTS



PHOTO: JOHN WALLACE GILLIES INC.

WM. F. DOMINICK

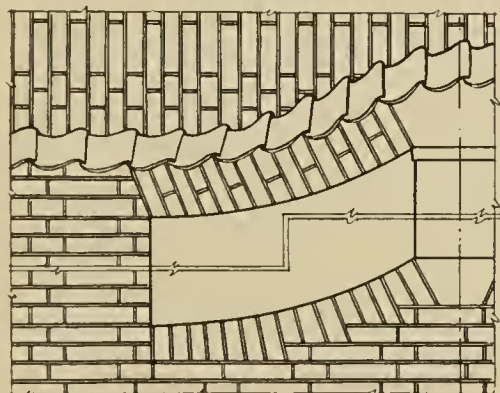
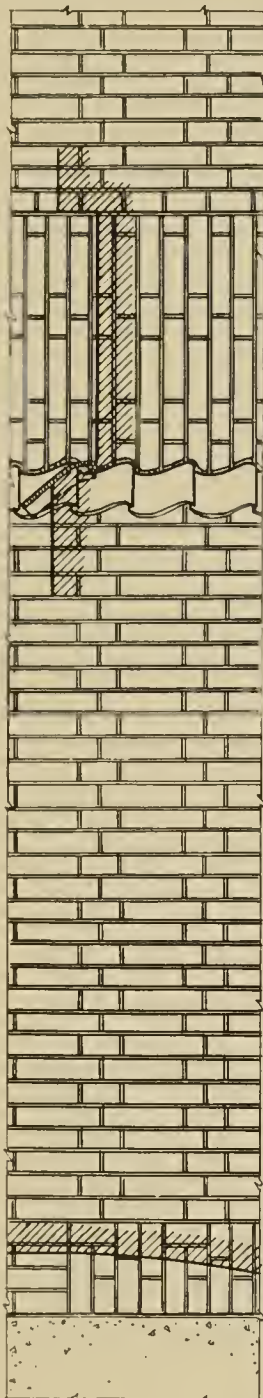
ARCHITECT



PHOTO: MILO ALEXANDER GUILD

KENNETH WATKINS

ARCHITECT



CONTEMPORARY BRICKWORK IN AMSTERDAM

DETAIL OF A MODERN APARTMENT HOUSE
S. DE KLERCK - - - ARCHITECT

ALTERNATING VERTICAL AND HORIZONTAL COURSES IN FLEMISH BOND
RELIEVED BY A CURVILINEAR PROJECTION OVER THE DOORWAY

BRICKWORK ADDS TO CHARM OF GARDENS



MEYER & HOLLER

ARCHITECTS



PIERPONT & WALTER S. DAVIS

ARCHITECTS



PHOTO: SAMUEL H. GOTTSCHO

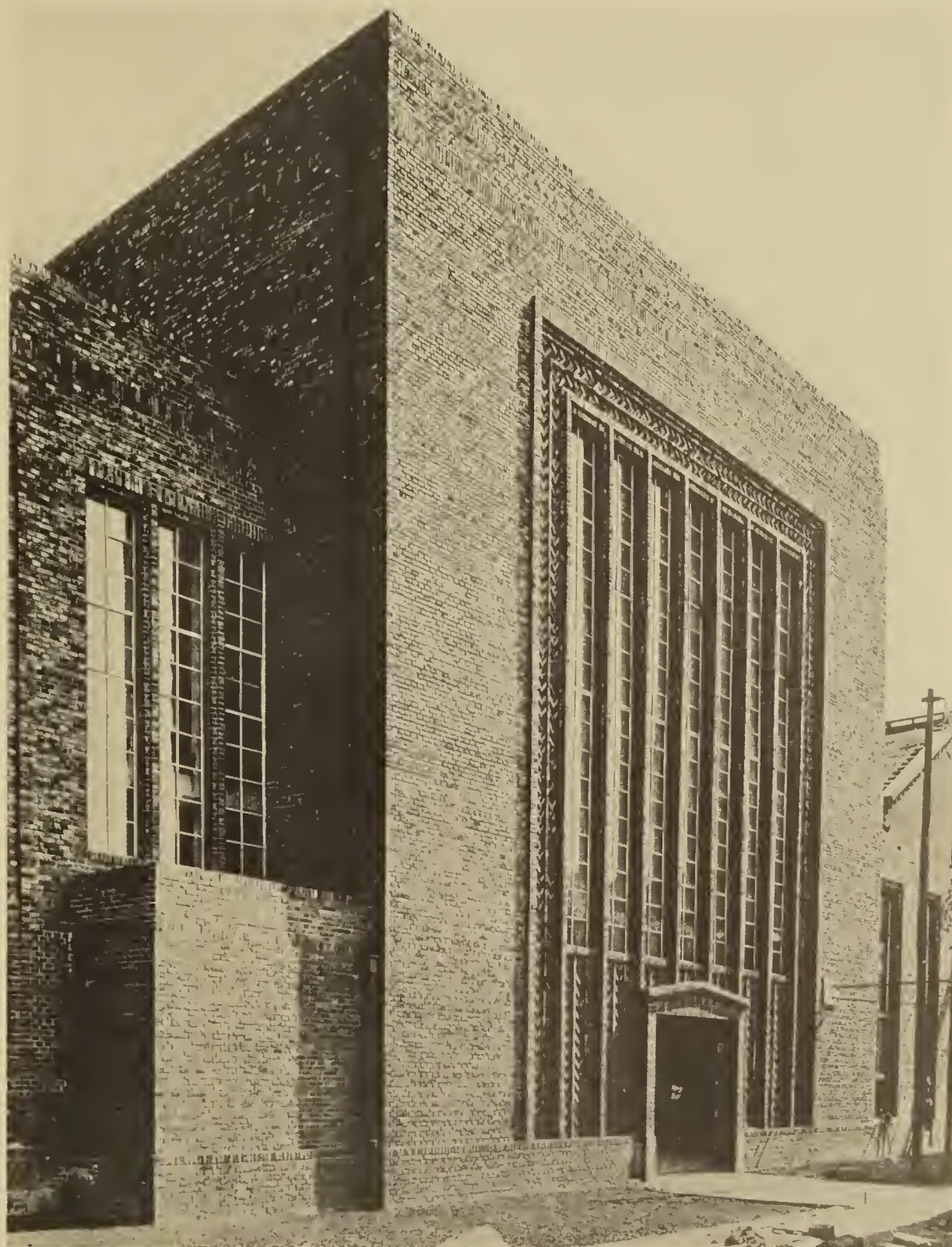
BUTLER & CORSE

ARCHITECTS



ALBERT KAHN

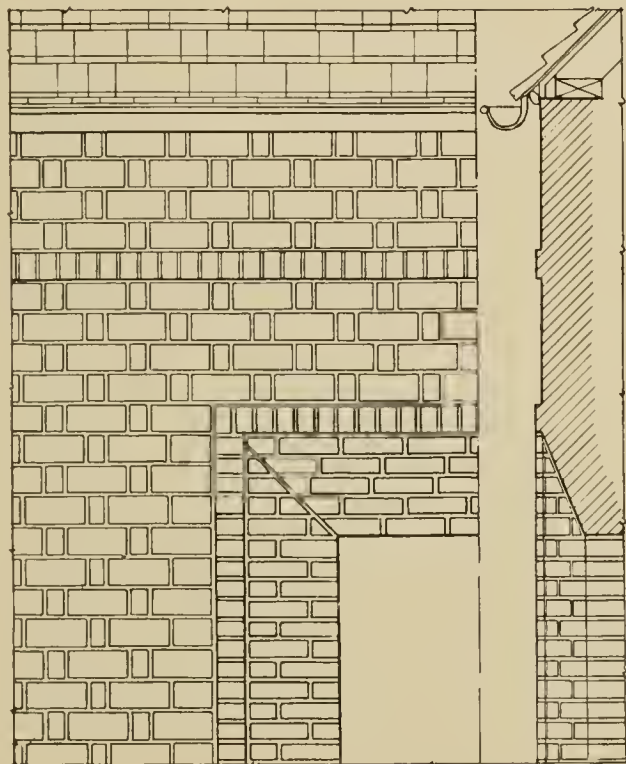
ARCHITECT



RADIO STATION AT NAUHEN, GERMANY
HERMANN MUTHESIUS, ARCHITECT



PHOTO © AMEMYA



THE CHARM OF SIMPLICITY
RESIDENCE OF PAUL A. RIE
PORT WASHINGTON, NEW YORK

CLARENCE S. STEIN AND
ERNEST A. GRUNSFELD, JR.
ARCHITECTS

FIRST PRIZE OF \$1000 AWARDED THIS HOUSE IN
THE FIRST COMMON BRICK HOUSE COMPETITION

WHITEWASHED OR PAINTED COMMON BRICK



WEBER, STAUNTON & SPAULDING ARCHITECTS



PAUL R. WILLIAMS

ARCHITECT



WEBER, STAUNTON & SPAULDING ARCHITECTS



DEAN AND DEAN

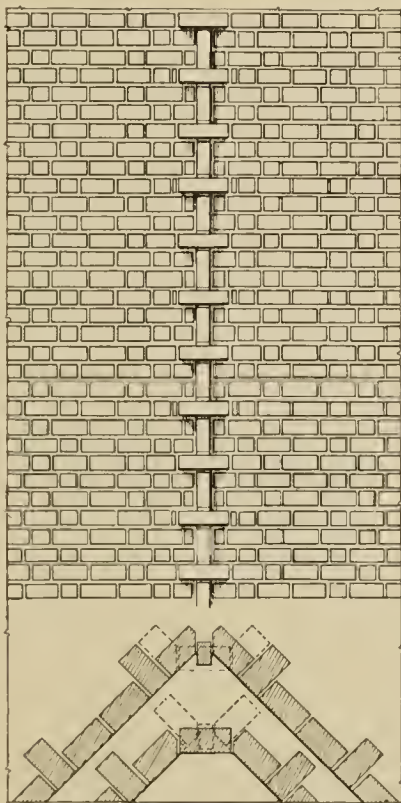
ARCHITECTS



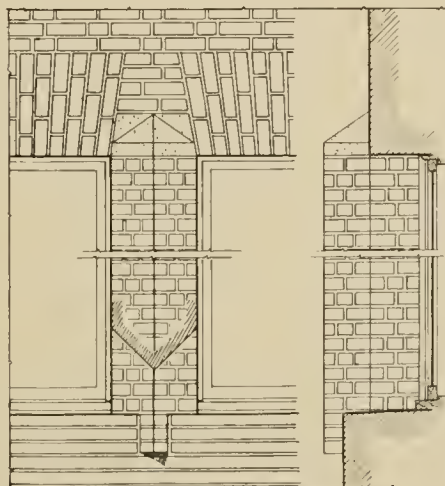
APARTMENT HOUSES IN AMSTERDAM

MODERN DESIGN CONCEPTIONS
DEVELOPED IN COMMON BRICK

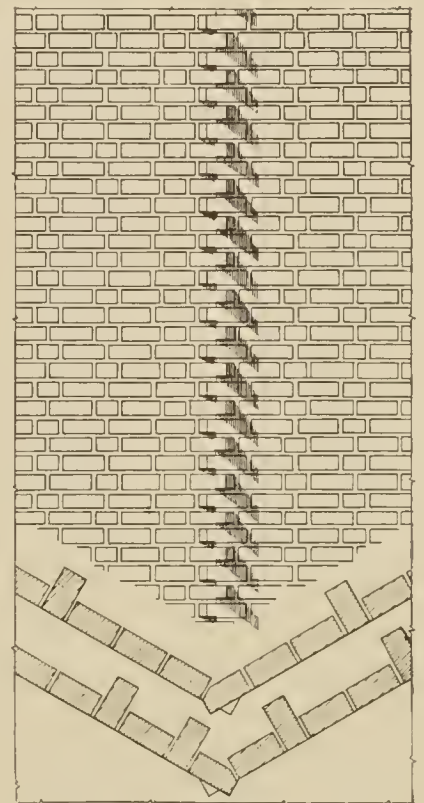
PHOTO BY BURTON HOLMES, FROM EWING GALLOWAY



INTERIOR ANGLE OF
CHIMNEYS



RECESSED WINDOWS ABOVE SHOP



EXTERIOR ANGLES ABOVE
SHOP ENTRANCE

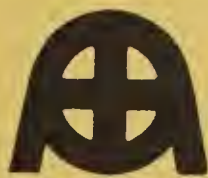
SPECIFICATIONS

for

BRICKWORK

and

Other Essential Information



THE COMMON BRICK MANUFACTURERS'
ASSOCIATION OF AMERICA
CLEVELAND, OHIO

JULY, 1930

FILED
FILING SYSTEM



INDEPENDENCE HALL

C. L. Lunt

10

11

12

Specifications for Brickwork

Suggested by The Common Brick Manufacturers' Association of America

Explanatory Notes

1. This specification should be used as Division 5 of the American Institute of Architects Standard Form of Specification.

2. Certain words, terms, phrases and paragraphs are printed in smaller type as optional provisions and should be used as written, deleted, or so altered as to express the proper intent of the specifications for the particular contract.

3. Obviously, complete specifications for all types of brickwork would involve greater detail than seems desirable in this general form. The effort has been made, however, to suggest in notes, inserted in the text, departures or additions necessary for special cases.

4. Local Building Codes should be consulted and all provisions of this specification made to conform to them.

5-1 GENERAL CONDITIONS

The general conditions of this specification shall be those issued by the American Institute of Architects and designated "The General Conditions of the Contract for the Construction of Buildings," Fourth Edition, Copyright 1915-1918-1925, copy of which is (made a part hereof) (made a part hereof and is on file in the office of the Architect, Engineer).

5-2 SCOPE OF WORK

1. **WORK NOT INCLUDED.** The following work is to be performed by others, but the Contractor shall familiarize himself with the requirements therefor in order to properly co-ordinate his work with that of others.

Wrecking, excavating, filling, backfilling, grading, concrete, rubble stone, cut stone, precast stone, architectural terra cotta, tile arch floors, tile fireproofing, load bearing tile, partition tile, furring tile, structural steel, ornamental iron work, bronze, anchors, bolts, miscellaneous iron, waterproofing, damp-proofing, caulking, painting.

NOTE — Use or omit as necessary and list any other pertinent items.

2. **WORK REQUIRED.** The work required under this specification includes all labor, equipment, materials and service necessary for the completion of all brick masonry work shown on the drawings or as hereinafter specified.

5-3 SUPERVISION, EMPLOYEES, ETC.

The Contractor shall employ and supervise his workmen as provided in Articles 9 and 14 of the General Conditions of the Contract.

5-4 HOISTING EQUIPMENT AND SCAFFOLDING

1. **HOISTING EQUIPMENT.** All towers and hoisting equipment required for the work under these specifications shall be furnished, erected, operated, and maintained by (the Contractor), (the General Contractor at rates to be mutually agreed upon) and, upon completion of the work, shall be removed from the premises by him.

2. **SCAFFOLDING.** All scaffolding required for work under these specifications shall be furnished, erected and maintained by (the Contractor) (the General Contractor at rates to be mutually agreed upon) and, upon completion of the work, removed from the premises by him.

3. **LEGAL RESTRICTIONS.** All towers, hoisting equipment and scaffolding shall be erected, operated and maintained in accordance with governing local ordinances, State and Federal Laws.

5-5 BUILDING-IN WORK OF OTHER TRADES

1. The Contractor shall familiarize himself with the general plans and specifications so as to properly co-ordinate his work with that of the other trades. As the work progresses, the Contractor shall build in steel beams, steel lintels, concrete lintels, concrete sills, nailing strips, chases, pipes, bolts, sleeves and other fixtures that may be required. Such appurtenances will be furnished, placed and braced by the contractors whose work depends thereon. They shall be installed in or on the brickwork in a manner approved by the Architect, Engineer (and by the contractor who supplies them). The Contractor shall seal them tightly in place and make them a solid part of the structure. All beams, columns and bearing plates shall be properly set in a bed of cement mortar, cement-lime mortar.

2. **WOOD BLOCKING, GROUNDS, ETC.,** shall be solidly built into the brick masonry and anchored as shown in the drawings, by the Contractor. The necessary material will be furnished by another contractor.

3. **OPENINGS.** When it is necessary to drill, cut or otherwise form openings in existing masonry work to receive bolts, structural shapes or new walls or parts, the work shall be done by the Contractor in such manner as will produce a neat opening no larger than actually required for the purpose; and the operation completed in a manner approved by the Architect, Engineer.

5-6 MATERIALS

1. **DELIVERY, STORAGE AND HANDLING.** All materials shall be so delivered, stored and handled as to preclude the inclusion of foreign materials and the damage of materials by water or breakage. Package materials shall be delivered and stored in original packages until ready for use. Packages showing evidence of water or other damage shall be rejected. All materials shall be of the respective qualities specified herein. Not over 10 per cent bats for common brick and 5 per cent for all other brick will be allowed.

2. **BRICK.** All facing brick used in positions exposed to the weather shall be sound, hard, well-burned brick. Brick used in unexposed positions may be of softer grade.

NOTE — The metallic "ring" of two brick struck together, or with a trowel is usually, but not always, a dependable test of a well-burned brick. Color, for brick manufactured in a given locality, is also an index.

The American Society for Testing Materials Standard Specification, Serial designation, C 62-29, classifies brick in three grades, A, B and C, with respective flat compressive strengths of 4500 and over, 2500-4500, and 1250-2500 lbs. per sq. in. Generally, grades

A and B are well-burned, but grade C may or may not be well-burned, depending upon the character of the raw materials and manufacturing processes. If A.S.T.M. classifications are written into this specification, a fair knowledge of the physical characteristics of the brick it is proposed to use is necessary for their proper selection.

.3 SURFACE APPEARANCE. Selected brick shall be of such surface appearance as to lie within the color and texture ranges of the approved samples.

.4 SPECIAL FACING BRICK. Special facing brick of quality approved by the Architect, Engineer, and equal to samples submitted, shall be used as follows:

NOTE — *Here state the kinds of brick to be used, manufacturers' names, brands or other descriptions and state specifically the place or places in the construction where each is to be employed.*

Such special facing brick shall be purchased by the Contractor out of a cash allowance of \$----- per M.

NOTE — *Here name the estimated cost per M. for each variety to be used.*

.5 RAGGLE BLOCKS. Raggle blocks shall be of quality approved by the Architect, Engineer, and equal to samples submitted, or as furnished by (manufacturer's name, and/or brand). Such raggle blocks shall be purchased by the Contractor out of a cash allowance of \$----- per M.

NOTE — *Here name the estimated cost per M.*

.6 CREDITS ON BRICK AND RAGGLE BLOCKS. Should special facing brick and raggle blocks cost, delivered at the site, less than the stated allowances, the balance shall revert to the owner; if in excess of the allowances, the Contractor shall receive extra compensation equal to the excess cost over the specified allowances.

.7 FIRE BRICK. Fire brick shall be of quality approved by the Architect, Engineer, and equal to samples submitted or as furnished by (manufacturer's name, and/or brand).

.8 FLUE LININGS. Fire clay tile flue linings, or fire clay for a plaster lining, shall be of quality approved by the Architect, Engineer, and equal to samples submitted, or as furnished by (manufacturer's name and/or brand).

.9 VITRIFIED TILE COPING. Tile coping shall be standard weight, salt glazed (single slant) (double slant), coping of quality approved by the Architect, Engineer and equal to samples submitted, or as furnished by (manufacturer's name and/or brand). The contractor shall furnish all corners and specials required.

.10 PORTLAND CEMENT. Portland Cement supplied for the mixing of mortar shall (meet the requirements of the standard specifications for Portland Cement of the American Society for Testing Materials, Serial Designation C 9-26 and shall be sampled and tested in conformity thereto as may be required by the Architect, Engineer), (be of ----- brand, or equal, and shall be delivered in unbroken packages with the maker's name and brand indicated plainly thereon).

.11 SPECIAL HIGH TEST CEMENT. High early strength Portland Cement may be used providing it meets with the approval of the Architect, Engineer.

.12 BRICK MASON'S (SPECIAL) CEMENT. Brick Mason's cement shall be (of quality approved by the Architect, Engineer) (of ----- brand, or equal, and shall be delivered in unbroken packages with the maker's name and brand plainly indicated thereon).

.13 QUICKLIME. Quicklime supplied for use in mortar shall conform to the requirements of the standard specifications for quicklime of the American Society for Testing Materials, Serial Designation C5-26.

.14 HYDRATED LIME. Hydrated lime supplied for use in mortar shall conform to the requirements of the standard specifications for hydrated lime of the American Society for Testing Materials, Serial Designation C6-24.

.15 SAND. Sand used in mortar shall be fresh water sand and be clean and silicious.

NOTE — *In localities where salt water sand is liable to be used, the above optional provision may be desirable.*

.16 WATER. Water shall be clean, free from salt, and other impurities.

.17 MORTARS. Mortars used for the brickwork under these specifications shall be proportioned and mixed ac-

cording to the following provisions. Proportions shall be based upon volume. Designations of varieties are those used hereinafter.

.17.1 METHOD OF MIXING. All mortar used for laying brick shall be thoroughly mixed either by hand or in a mechanical batch mixer. The use of a continuous mortar mixer is positively prohibited.

.17.2 AMOUNT OF WATER. A minimum amount of water, only sufficient to make a workable mortar, shall be used.

.17.3 SLAKING LIME. All lump lime used shall be thoroughly slaked and shall not be mixed into mortar until it has stood for at least 48 hours after the initial slaking process has been completed.

.17.4 RETEMPERING. The use of retempered mortar of any kind, which has taken any degree of initial set, is prohibited.

.17.5 MORTAR COLORS. Mortar colors shall be mineral colors only and shall be of a character which will not weaken the strength of the mortar joint. They shall be used in strict accordance with the manufacturer's directions and in such proportions as will produce a mortar color satisfactory to the Architect, Engineer.

NOTE — *The use of mineral colors only is suggested because of the greater likelihood that they will be permanent and not deleterious to the mortar.*

.17.6 ADDITION OF CEMENT. Where a gauging of cement is specified to be added to lime mortar, the lime putty and sand shall first be thoroughly mixed together and the Contractor shall then add, immediately before placing on the mortar boards, the amount of (Portland Cement) (Mason's Cement) specified in sub-paragraph 5-6 .17.11, which shall be worked up with the lime mortar into a smooth homogeneous mass.

.17.7 LIME MORTAR. Lime mortar shall be composed of one part lime putty or hydrated lime and not more than three parts of sand.

.17.8 CEMENT-LIME MORTAR. Cement-lime mortar shall be composed of one part cement, one part lime putty or hydrated lime, and not more than six parts sand.

.17.9 CEMENT MORTAR. Cement mortar shall be composed of one part cement and not more than three parts sand, to which may be added not to exceed fifteen (15) per cent of the cement content, of hydrated lime or lime putty.

.17.10 BRICK MASON'S (SPECIAL) CEMENT MORTAR. Brick Mason's Cement mortar shall be composed of one part of brick Mason's cement and not more than three parts of sand.

.17.11 GAUGED LIME MORTAR. Gauged lime mortar shall consist of one part lime putty or hydrated lime and not more than three parts of sand to which shall be added, immediately before using, 10 per cent, 15 per cent, 20 per cent, of Portland Cement, Brick Masons' Cement.

.17.12 WATER-PROOFED MORTAR. Integral waterproofing shall be used in mortar as required by the Architect, Engineer. It shall be a variety approved by the Architect, Engineer, and shall be used in a manner satisfactory to him and according to the specifications of the manufacturer.

.17.13 WHITE MORTAR. White mortar shall consist of one part non-staining cement and not more than three parts of suitable inert materials, all of which are subject to the approval of Architect, Engineer.

5-7 USE OF MORTARS

NOTES — *Specifications for mortar mixes and their use should be predicated upon a fair knowledge of their abilities to meet performance requirements. The principal requirements are: strength, resistance to water penetration, cost and appearance. Mortar proportions which best meet one of these requirements do not necessarily meet all others.*

Cement mortar (1 part Portland cement, 3 parts sand) produces higher masonry strengths, but is not readily workable; lime mortar works freely but produces weaker masonry strength, and various proportions of cement, lime and sand produce intermediate strengths and degrees of workability. Water tightness is better insured by com-



plete joint filling of, at least, the exposed tier of brickwork. A more workable mortar makes joint filling easier, induces better workmanship and also tends to increase brick-mason production (hence decrease labor cost).

Cement mortars are probably more impervious, *per se*, but are not immune from expansion and contraction movements which may open up cracks between mortar and brick. The more inert (leaner) mortars suffer less movement, but are not as strong.

A mortar which fairly well meets all requirements is composed of one (1) volume of Portland cement, one (1) volume of lime putty or hydrated lime, and six (6) volumes of sand. It may be used in all parts of the structure, especially in portions exposed to weather. Where maximum compressive strength is desired, as in piers, columns, footings, foundation walls, etc., a cement mortar (1:3) should be used.

For carrying the lighter loads, as in dwellings and similar buildings, lime mortar (1:3) should be satisfactory.

5-8 BRICKLAYING

1 WETTING BRICK. Before laying, except in freezing weather, all brick shall be thoroughly wetted, but shall not be soaked to the point of saturation.

2 ACCURACY OF WORK. All brickwork shall be laid plumb, true to line and level, with all required angles and reveals built up level, square, sharp and true to dimension. All arches and special turned or cut work shall be true to detail in all respects.

NOTE — For rough or "skintled" work, amend this paragraph to suit. See page 6 for suggested types.

3 BOND. Unless otherwise shown on the plans, or specified herein, all brick shall be laid with five courses of running bond and a full header course every sixth course.

3.1 SPECIAL BOND. A special bond shall be used for the following items of brickwork.

NOTE — Here name and locate in detail each piece of work and kind of bond to be used. See page 7.

4 JOINTS. All brick shall be laid in full bed joints. Facing brick shall have all vertical joints filled with mortar, and finished as struck, weathered, raked, etc., joints, as directed by the Architect, Engineer.

NOTE — Full, flat (unfurrowed) horizontal mortar joints produce maximum masonry strength. Full horizontal and vertical joints in the exposed face produce more water-tight walls. In structures of minor importance the best kind of workmanship is not always necessary. Specifications should be so written, in these particulars, as to insure the desired results. See page 7.

4.1 THICKNESS OF JOINTS. The thickness of mortar joints shall, (in general, not exceed $\frac{3}{4}$ of an inch) (shall be as directed by the Architect, Engineer.) (The thickness of joints in exposed faces shall not exceed $\frac{1}{2}$ of an inch). The thickness of joints in parapet walls shall not exceed $\frac{3}{8}$ of an inch.

NOTE — The strength of brickwork is, in general, increased by the use of relatively thin mortar joints. This is a point of minor importance, however, as compared with the tendency of thinner joints in exposed faces, to discourage the penetration of water. A suitable specification in this particular, for a given construction, should be based upon these considerations as well as that of cost, or appearance.

5 INTERSECTING WALLS. When two walls meet or intersect and the courses are carried up together, the intersection shall be bonded by laying not less than 50 per cent of intersecting brick in a true bond. When the courses of meeting or intersecting walls are not carried up together, the perpendicular joint shall be regularly toothed with not less than 8-inch offsets and the joint provided with metal anchors not less in section than $\frac{1}{4}$ of an inch by 2 inches with ends bent up not less than 2 inches, or with cross pins to form anchorage. Such anchors shall be not less than 3 feet long and extend not less than 18 inches into the wall on each side of the joint, shall be spaced not more than 4 feet apart, and shall be embedded in solid masonry.

6 PILASTERS AND BUTTRESSES. Pilasters and buttresses shall be bonded by masonry into the wall in the same manner as that employed in the construction of the wall.

7 FACING AND BACK-UP. The facing and back-up material shall be carried up together, as closely as possible and no facing shall, where at all avoidable, be carried up more than five (5) courses ahead of the backing.

8 HOLLOW WALLS. All joints of hollow walls of brick shall be completely filled with mortar. The spaces between wythes shall be kept reasonably free from mortar droppings. In hollow walls, all window, door and other openings shall be enclosed in solid brickwork, not less than 8 inches wide.

8.1 HOLLOW WALLS — CHANGE IN THICKNESS. Where wall thickness is changed in hollow walls, a solid course of masonry shall be built at the point where dimensions change.

NOTE — See page 5 for hollow wall types.

9 BEARINGS. Girders, floor beams or joists and all structural members delivering concentrated loads to the masonry shall rest on solid masonry.

10 ANCHORAGE OF TERRA-COTTA OR OTHER FACING. When walls are faced with terra-cotta or similar material, such wall facing shall be bonded into the backing with the equivalent of one full header for each 72 inches of wall surface; or suitable non-corrosive metal anchors or wall ties spaced not farther apart than one foot vertically and two feet horizontally.

11 CHIMNEYS. Chimneys shall be built in locations shown on the drawings. They shall be constructed of solid masonry and shall otherwise conform in workmanship and character to the specifications contained in "An Ordinance for Construction of Chimneys" published, 1920, by the National Board of Fire Underwriters. They shall be laid in (cement) (cement-lime mortar) with all joints well filled. They shall be lined with fire clay tile flue linings, built in as the brickwork progresses, and all the space between said lining and the brickwork shall be entirely filled with mortar.

NOTE — It is probable that the use of cement-lime mortar is preferable to cement mortar, for chimney construction. The use of the former in tall stacks is quite general, for the reason that it appears to have superior qualities in resisting stresses induced by extreme variations in temperature. The use of fire-clay tile linings is prescribed by many building codes and is highly desirable. Its full usefulness depends, however, upon its being made an integral part of the structure which, in turn, necessitates carrying it up simultaneously with the brickwork and thoroughly filling the intervening spaces. If a fire-clay plaster lining is considered adequate it shall consist of not less than a $\frac{1}{2}$ -inch coating well trowelled on, for the full height of the chimney.

12 CENTERS. All temporary centers and forms shall be furnished and set by the Contractor, Carpenter Contractor, and, after the brickwork is set, they shall be disassembled and removed by him.

13 PATTERN WORK. The following pattern work shall be carried out as shown on the drawings: (Here name specific locations and character of all work.)

14 SPECIAL BRICKWORK. (Here refer to drawings and describe in such detail as may be necessary such special items as carved brickwork, fountains, garden walls, etc.)

15 CHASES. All chases shown on the drawings shall be built into the brickwork as the work proceeds. (Subsequent cutting of chases in the brickwork is strictly prohibited). (Should an emergency arise which requires building in chases, the Contractor shall do all cutting, building and patching at his own expense.)

NOTE — It is desirable that chases be built in as work proceeds and the last optional paragraph is suggested only to cover exceptional conditions. The design should provide not less than four inches of solid masonry around each chase.

16 PRECAUTIONS DURING FREEZING WEATHER. No brickwork shall be laid when the temperature is 32 degrees or less, unless adequate protection, meeting with the approval of the Architect, Engineer, is provided by the Contractor until the cementing material in the brickwork shall have set sufficiently to prevent any displacement of the masonry. All brick masonry materials used at such times shall be adequately preheated. The use of any frozen or ice coated materials is prohibited, as is building upon frozen masonry or frozen soil.

NOTE — This paragraph should always be used in localities and during seasons such that freezing weather is likely to occur.

5-9 SETTING DOOR AND WINDOW FRAMES

.1 TO BE SET IN MORTAR. All door and window frames shall be set in mortar around their entire peripheries. Before mortar has set, joints around door and window frames shall be raked out $\frac{1}{2}$ inch to prepare them for caulking by (the Contractor) (by another contractor). (The joints around door and window frames shall be caulked with oakum and filled with elastic cement.) (Staff beading or cove molding shall be set in elastic cement around door and window frames in the corners where they adjoin the brickwork.)

NOTE — *Caulking around door and window frames is usually desirable as a means of stopping the passage of air and moisture. In some localities this work is done by the brickwork contractor while in others it is regarded as the work of another trade. This specification should be drawn according to local conditions.*

5-10 WATERPROOFING

NOTE — *So designing brickwork as to prevent the penetration of water through exposed faces is most important. Many of the provisions suggested in this section may well be incorporated in the drawings and omitted here, or if deemed advisable, covered both by the drawings and specifications.*

.1 FOUNDATION WALLS. Foundation walls shall be waterproofed by back-plastering the outside of the wall with a coating of (cement) (lime-cement) plaster, one-half inch in thickness and well-trowelled on as the wall is built. (Or) by applying a standard form of bitumastic or similar waterproofing compound, approved by the Architect, Engineer.

NOTE — *This provision is necessary in all dense soils which do not drain freely. In sand or gravel soils and in locations such that there is satisfactory natural drainage it may be safely omitted.*

.2 ALL OVERHANGING BRICKWORK and stone work indicated on the drawings or as called for in the specifications shall be built with a drip ledge or at such a slope as will drain water away from the wall.

.3 ALL WINDOW LINTELS and sills shall be so built as to drain water away from the wall or else be provided with drip caps or drip ledges.

.4 COPINGS. The copings at the tops of walls shall be made watertight.

.5 PARAPETS. Parapets shall be so constructed as to prevent the entrance of water through their faces.

.6 FLASHINGS. Flashings shall be properly built into the brickwork as (shown on the drawings) (required by these specifications) (directed by the Architect, Engineer.)

NOTE — *The following applies to paragraphs 5-10 .4, .5 and .6. Whenever parapets and copings are employed in the design, brickwork should be laid with care to exclude water. Joints should be thin and thoroughly filled; they should be carefully weatherstruck. Flashings should be carried entirely through parapet walls or within an inch of their faces. Counterflashing may be used to advantage. Copings should be constructed of waterproof materials and should, preferably, be underlaid with a membrane of non-corrosive metal or rough coated roofing. The use of integrally waterproofed mortar may prove advisable. See page 8 for suggested details.*

5-11 CONNECTING WITH EXISTING WORK

.1 REMOVAL OF PORTION OF EXISTING MASONRY. Wherever the work herein specified is to be connected with existing structures, the Contractor shall remove such of the existing masonry as is necessary to make connection therewith in a finished and workmanlike manner, and satisfactory to the Architect, Engineer.

.2 INTERRUPTIONS TO OPERATIONS OR OCCUPANCY. If it becomes necessary to interrupt the operation of existing equipment or interfere with the occupancy of an existing portion of the building, the Contractor shall do such work at such times as are agreed upon between the Contractor and the Owner, Architect, Engineer.

.3 WORK OUTSIDE OF REGULAR HOURS. If such work must, in the Owner's, Architect's, Engineer's judgment, be done outside of regular working hours, the Contractor shall do the work at this time (without additional cost) (at an additional cost agreed upon before the work is started).

.4 AGREEMENTS IN WRITING. Agreements covering arrangements stated in 5-11.1 and 5-11.2, herein, shall be definite in every particular and shall be made in writing.

5-12 MISCELLANEOUS

.1 BRICK PAVING. Brick paving shall be laid on foundation as specified and as furnished by others and laid as specified by the Architect.

.2 PROTECTION OF THE WORK. The Contractor shall furnish all labor and materials and eventually remove from the premises all necessary protection of brickwork. He shall see that all walls, piers and other exposed unfinished brickwork is so covered at the completion of each day's work that storm water may not enter.

.3 PROTECTION OF WORKING SPACES. All temporary bulk heads, partitions, canvas drops and other protection of like character, reasonably required to close off parts in which new or alteration work is being done, shall be provided, complete in place, and later removed, by (the Contractor), (-----).

.4 CLEANING AND POINTING. All exterior brickwork shall be thoroughly cleaned and pointed as directed by the Architect, Engineer. In extreme cases a 5 per cent solution of muriatic acid may be used for cleaning off the exterior of brickwork, but this should be followed by a copious bath of fresh clean water.

.5 SMOKE TESTS ON CHIMNEYS AND FLUES. Before acceptance, all masonry chimneys and flues built under this specification shall be subjected to a standard smoke test for tightness. If this test is not met to the satisfaction of the Architect, Engineer, the Contractor shall furnish all necessary material and do all necessary work to make such chimneys and flues sufficiently impervious to pass the standard smoke test.

.6 PATCHING. Any brick masonry damaged during construction shall be repaired to the satisfaction of the Architect, Engineer. The cost of such work shall be borne by the Contractor if he is responsible for the damage. If the damage is caused by other contractors, then the cost shall be borne by them and payment shall be in addition to this contract.

.7 FIREPLACES.

NOTE — *Here specify locations and complete details of construction.*

Valuable design data will be found in the Common Brick Manufacturers' Association's publication, "The Heart of the Home," and in the National Board of Fire Underwriters' Code of Chimney Construction.

.8 STACK.

NOTE — *Here specify location and detail of design, with appropriate references to drawings.*

.9 INCINERATOR.

NOTE — *Here specify requirements. Specifications may usually be had from local or nearby offices of companies engaged in the manufacture of incinerator equipment.*

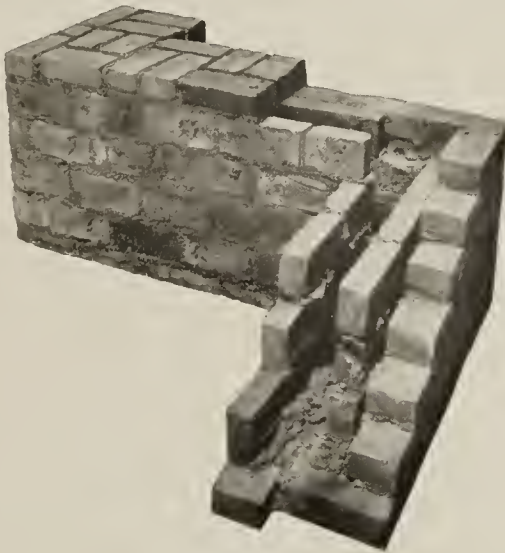
HOLLOW WALLS



8" ALL ROLOK



12" ALL ROLOK



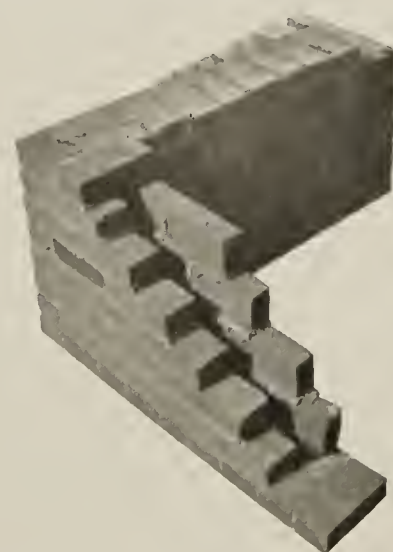
12" ROLOK-BAK



12" HEAVY DUTY ROLOK-BAK



8" ALL ROLOK-FLEMISH BOND



8" ROLOK-BAK

Attractive Exteriors with Common Brick Economy

The suggested skintled effects, illustrated herewith, are subject to almost unlimited modification or combination.

The wide range of colors and textures, with varying degrees of light and shadow, all obtained in common brick, have been used by many architects in many kinds of structures.



Skintled Brickwork Effect No. 2



Skintled Brickwork Effect No. 4



Skintled Brickwork Effect No. 6



Skintled Brickwork Effect No. 1



Skintled Brickwork Effect No. 3



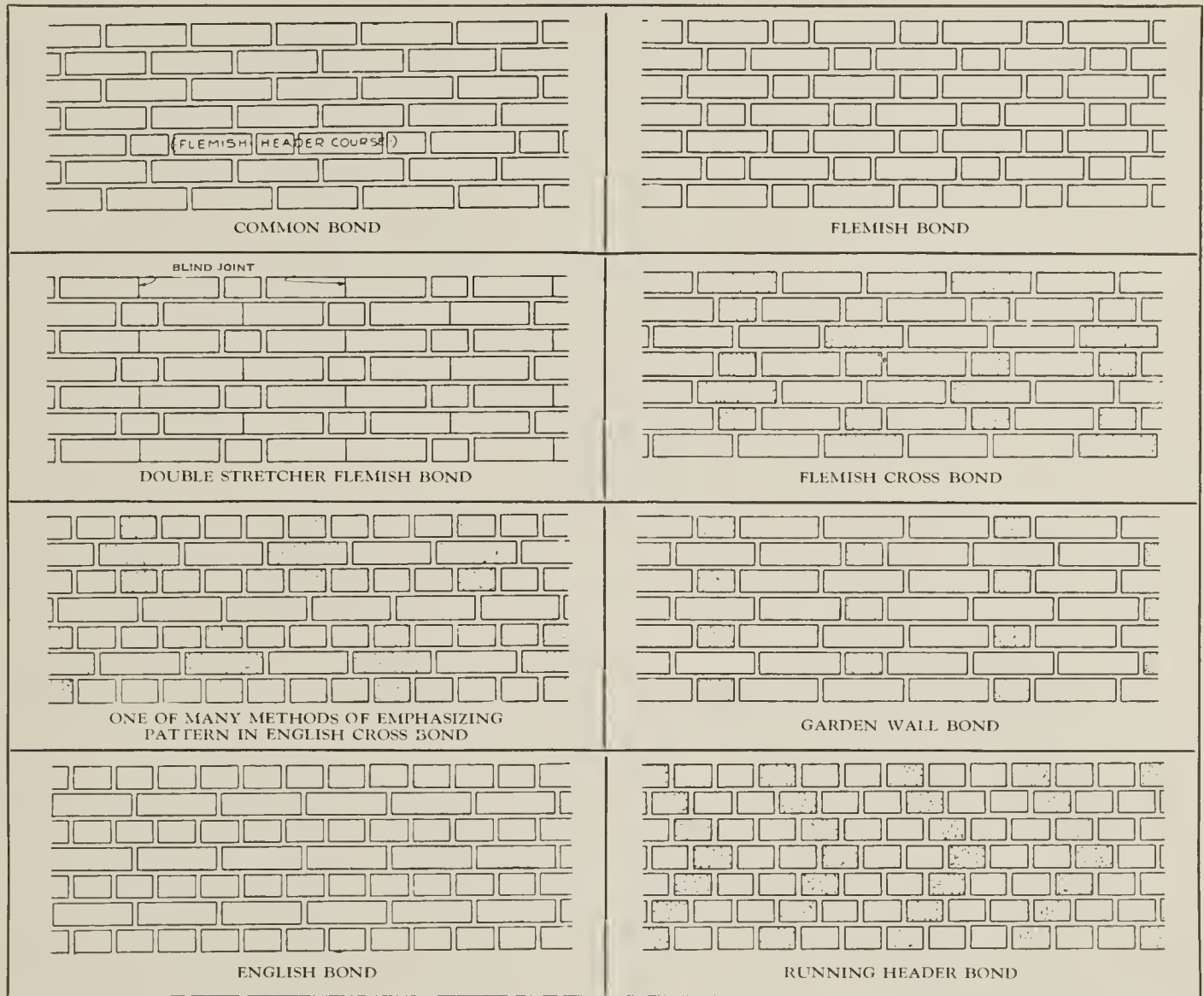
Skintled Brickwork Effect No. 5



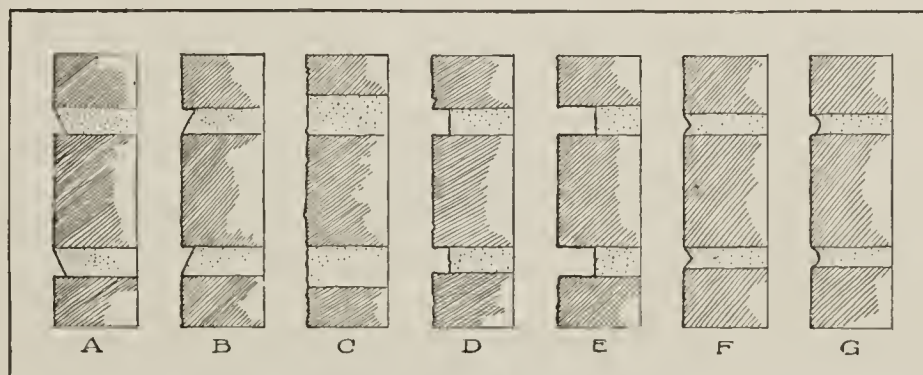
Skintled Brickwork Effect No. 7



BONDS

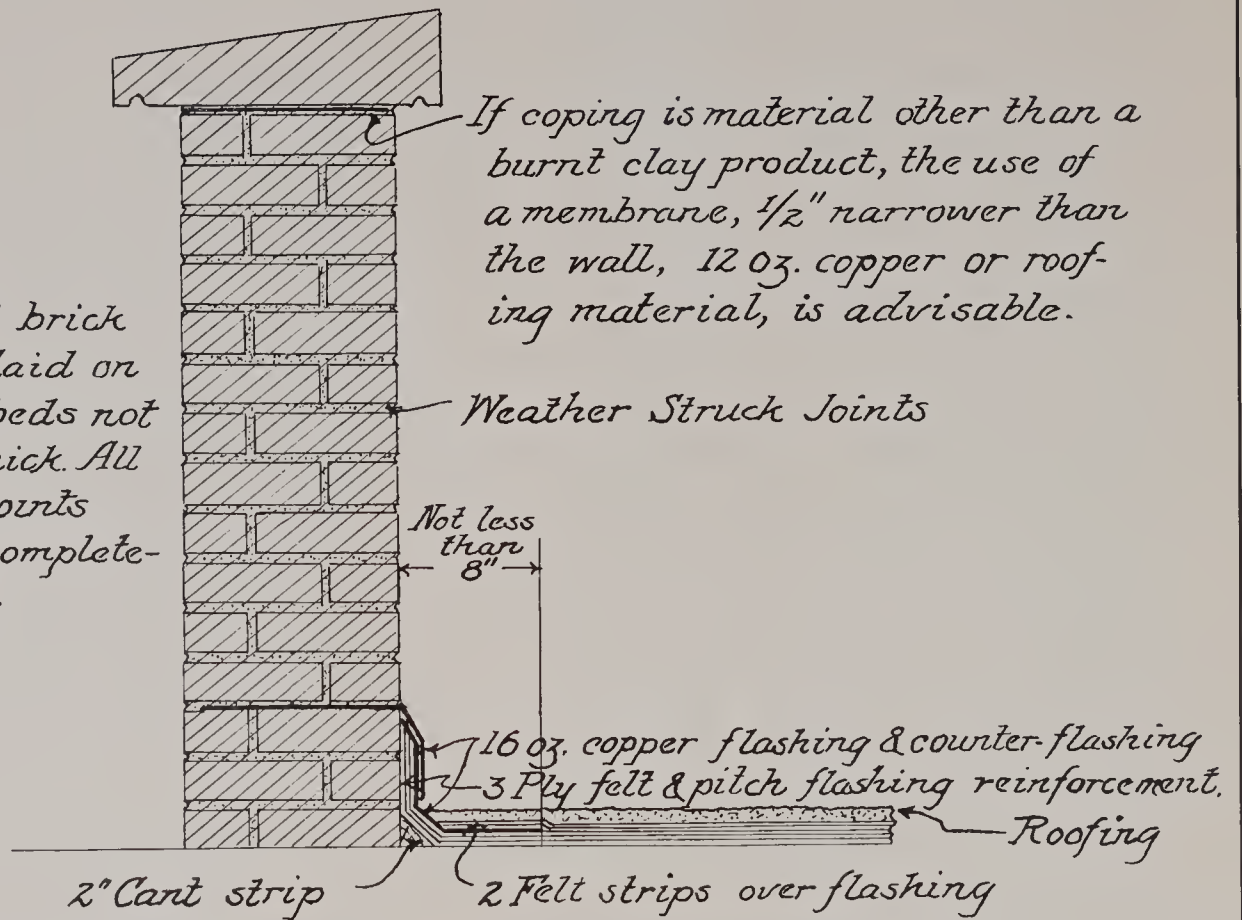


JOINTS

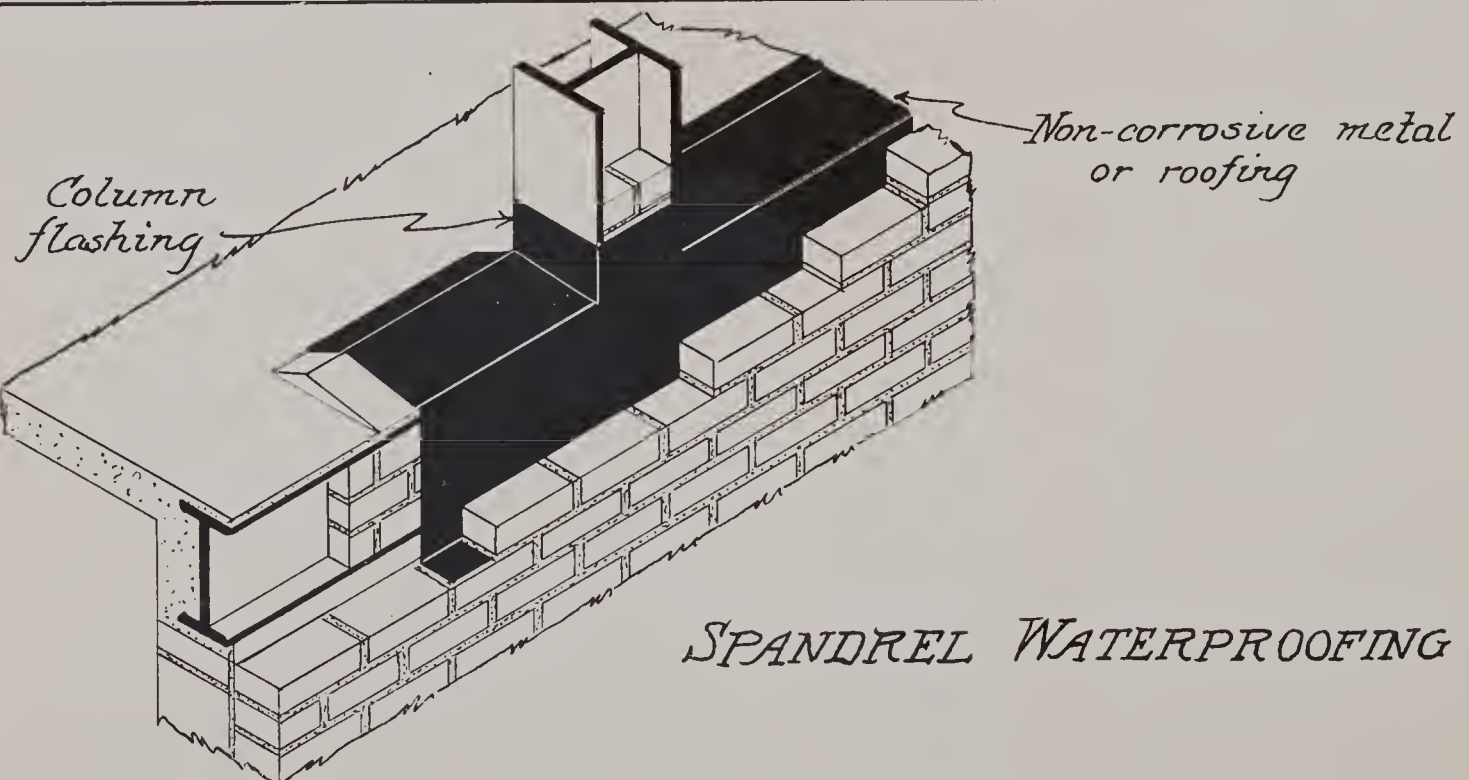


A, struck joint. B, weathered joint. C, flush or plain cut joint. D, raked joint. E, stripped joint. F, "V" joint. G, concave joint.

Note: All brick must be laid on full, flat beds not over $\frac{1}{2}$ " thick. All vertical joints must be completely filled.



PARAPET WALL WATERPROOFING



SPANDREL WATERPROOFING

BRICK MASONRY

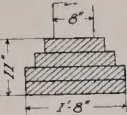
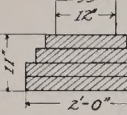
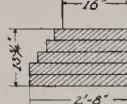
MATERIALS AND LABOR REQUIRED FOR 1,000 SQ. FT. WALL— $\frac{1}{2}$ " JOINTS

Character of Construction	Thickness of Wall	Number of Bricks	Cubic Feet of Mortar	Approximate* Time Laborer Hours	Approximate Time — Bricklayer Hours*		
					Common Bond	Other Bonds	
					Lime or Cement-Lime Mortar	Cement Mortar	Lime or Cement-Lime Mortar
Basement Walls — Solid Outer 4" thickness laid with all joints filled. Remaining brick laid on full bed of mortar, but brick touching end to end. Vertical space between 4" thicknesses filled with mortar. Every 5th course headers.	8"	12,706	195	97	73	93	
	12"	19,252	314	149	110	140	-
	16"	25,797	433	200	129	159	-
Walls Above Grade — Solid Same, except vertical space between 4" thicknesses left open.	8"	12,706	135	93	84	93	
	12"	19,252	195	140	128	140	-
	16"	25,797	255	187	137	172	-
Walls Above Grade — Solid Outer 8" thickness laid with as many as possible vertical joints parallel with face of wall left open. Remaining brick in thicker walls laid on full mortar bed but with brick touching end to end and vertical space between 4" thickness left open.	8"	12,321	195	95	---	---	110
	12"	18,867	255	142	---	---	159
	16"	25,412	314	189	---	---	179
Walls Above Grade — Solid All joints filled with mortar.	4"	6,161	76	46	62	68	
	8"	12,321	195	95	90	99	110
	12"	18,482	314	144	135	148	164
Rolok-Bak Walls — Hollow 4" Facing laid flat. Back laid on edge.	16"	24,642	433	192	152	179	197
	8"	10,500	109	61	92		
	12"	15,000	140	73	110		
Rolok-Bak, Heavy Duty — Hollow	12"	15,800	161	78	117		
All-Rolok — Hollow Facing and back laid on edge.	8"	9,000	74	48	72		
	12"	13,500	110	67	100		
All Rolok — Flemish Bond — Hollow	8"	9,000	74	56			111
	12"	13,750	110	69			138

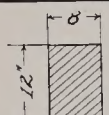
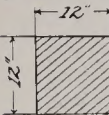
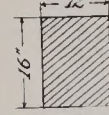
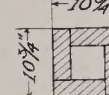
*Laborers' time includes that required for making mortar. Bricklayers' and laborers' time is approximate only. The character of the work largely controls this.
†Includes Flemish, English and English-Cross bonds.

FOOTINGS, PIERS AND CHIMNEYS

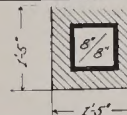
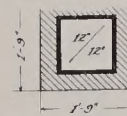
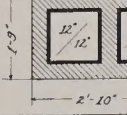
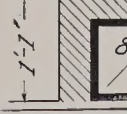
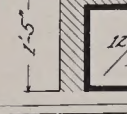
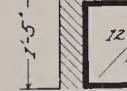
FOOTINGS — Quantities for 100 Linear Feet

Construction	Number of Brick	Mortar, Cu. Ft.	Approximate Time (Hours)	
			Laborer	Bricklayer
 8" Wall	2272	39	18	15
 12" Wall	2812	48	22	16
 16" Wall	4592	78	36	24

PIERS — Quantities for 10 Ft. Height

 8" x 12" Solid	124	2 1/4	1	1 3/4
 12" x 12" Solid	185	3 1/4	1 1/2	2 1/2
 12" x 16" Solid	247	4 1/2	2	3 1/4
 10 3/4" x 10 3/4" Hollow Brick Laid on Edge	113	1	1 1/4	2

CHIMNEYS — Quantities for 10 Ft. Height

 8" x 8" Flue	259	4 1/2	2	3 1/2
 12" x 12" Flue	345	6	2 3/4	4 1/2
 12" x 12" and 8" x 12" Flues	539	8 1/2	4	7 1/4
 8" x 8" Flue	173	3	1 1/2	2 1/4
 12" x 12" Flue	238	4	1 3/4	3 1/4
 12" x 12" and 8" x 12" Flues	367	6 1/2	2 3/4	5

